

THE
PHILOSOPHICAL WORKS
OF
FRANCIS BACON,
Baron of VERULAM, &c.

Methodized, and made *English*, from the ORIGINALS.

In THREE VOLUMES.

V O L. II. Co. ntaining,

Continuation of the *General Supplement* to the
De Augmentis Scientiarum; viz.

Suppl. VIII. A Specimen of the *Persian Magic*; or, An *Essay* towards deriving *Political* from *Natural Knowledge*; on Occasion of an *Union* betwixt *England* and *Scotland*. Dedicated in private to King *James I.*

Suppl. IX. A Specimen of *Animated Astronomy*; or, An *Essay* towards a *Philosophical History* of the *Heavens*.

Suppl. X. A short *Scientistical Critique* on the *Works* of the more eminent *Philosophers*, *Ancient* and *Modern*.

Suppl. XI. *Inferiora Rerum*; or, *Essays* upon *Moral*, *Oeconomical* and *Political Subjects*.

Suppl. XII. A Discourse of *WAR*. On Occasion of a *War* with *Spain*.

Suppl. XIII. The *Prudent Statesman*; or, The *Office* of *PRIME MINISTERS*.

Suppl. XIV. A Proposal for a New *Digest* of the *Laws* of *England*; made to King *James I.*

Suppl. XV. A *History* of the *Nature*, *Use* and *Proceedings* of the *Laws* of *England*.

Suppl. XVI. *Characteristics* of a *Believing Christian*; in *Paradoxes* and seeming *Contradictions*.

Suppl. XVII. An Attempt to promote the *Peace* of the *CHURCH*.

INSTAURATION, Part II.

Novum Organum Scientiarum; A New Machine for *Rebuilding* the *Sciences*; or, A particular *Logic* for discovering *Arts*, and interpreting the *Works* of *Nature*. With *Rules* for assisting, conducting and guarding the *Understanding* in the *Search* of *Truth*; and *Examples* of *Enquiry* for raising a solid *Structure* of *Universal Philosophy*; and extending the *Empire* of *MAN* over the *Works* of the *Creation*.

APPENDIX to the *Second Part* of the *INSTAURATION*; containing some *Intimations* for perfecting the Author's *Novum Organum*.

With New *PREFACES* to the particular *Pieces*; and *References* from one *Part* of the *Work* to another, where the same *Subject* is treated; so as to make the *Whole* a *Comment* upon *Itself*.

By PETER SHAW, M. D.

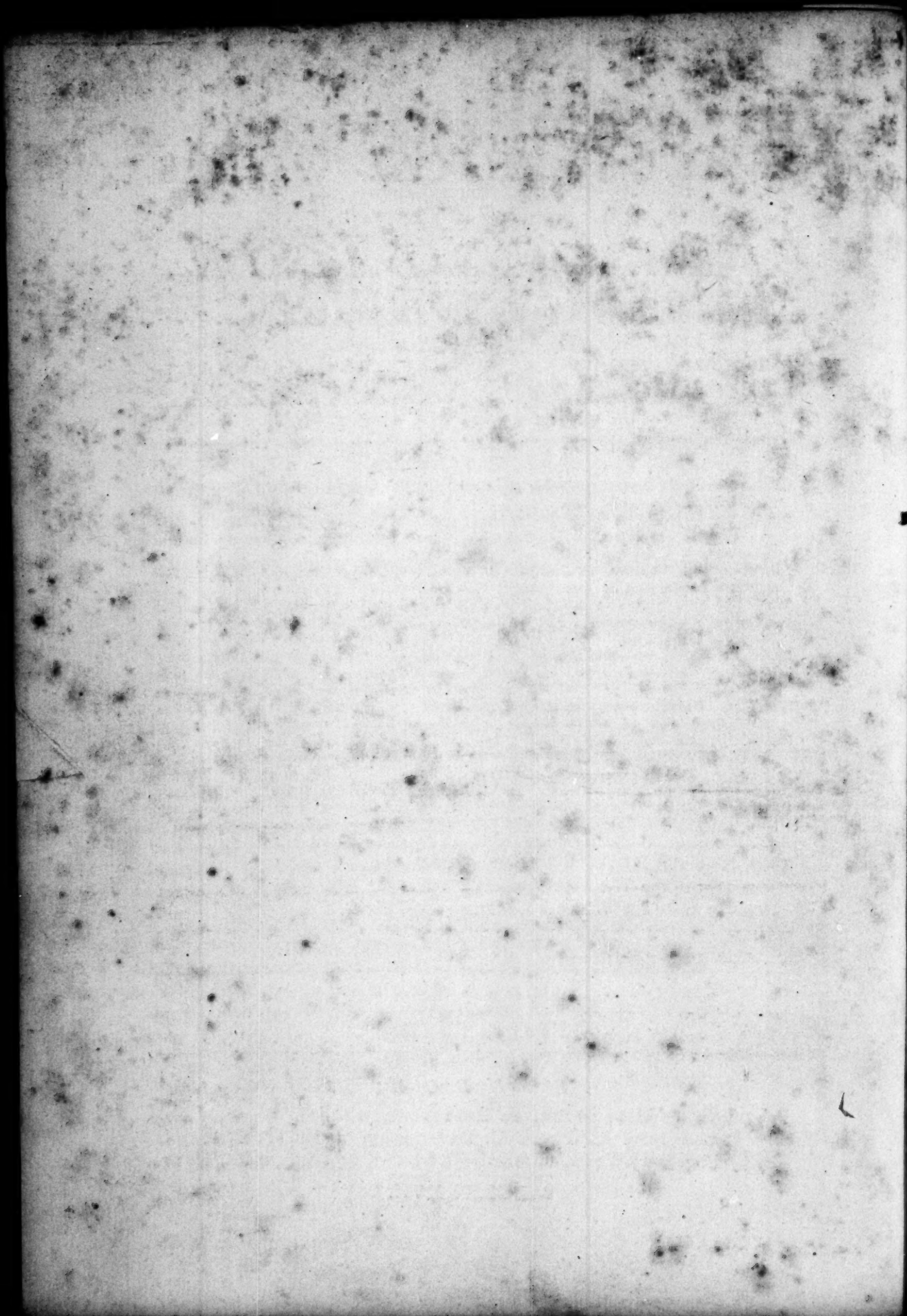
The SECOND EDITION.

Verbera, sed Audi.

L O N D O N :

Printed for D. MIDWINTER, A. BETTESWORTH and C. HITCH, J. and J. PEMBERTON, R. WARE, C. RIVINGTON, J. and P. KNAPTON, J. BATLEY and J. WOOD, T. LONGMAN, F. CLAY, A. WARD, and R. HETT.

M.DCC.XXXVII.



THE
PHILOSOPHICAL WORKS //
OF

FRANCIS BACON,

Baron of VERULAM, Viscount ST. ALBANS,

AND

Lord High-Chancellor of *England*;

Methodized, and made *English*, from the ORIGINALS.

WITH
OCCASIONAL NOTES,

To explain what is obscure; and shew how far the several PLANS
of the AUTHOR, for the Advancement of all the Parts of
Knowledge, have been executed to the present Time.

IN THREE VOLUMES.

By PETER SHAW, M.D.

VOL. II. "2"

Verbera, sed Audi.

LONDON:

Printed for J. J. and P. KNAPTON; D. MIDWINTER and A. WARD; A. BET-
TESWORTH and C. HITCH; J. PEMBERTON; J. OSBORN and T. LONGMAN;
C. RIVINGTON; F. CLAY; J. BATLEY; R. HETT; and T. HATCHETT.

M.DCC.XXXIII.

1 7 3 3

CONTINUATION
OF THE
General SUPPLEMENT

TO THE

De Augmentis Scientiarum :

O.R,

the several Pieces of the AUTHOR tending to supply the Deficiencies of Knowledge, pointed out in that
WORK.

ERRATA in VOLUME II.

Page. Line.

49. 4. for fre r. free.
 55. 10. for then r. them.
 ibid. 36. for *Paracelsists* r. *Paracelsists*.
 58. 11. ~~dele~~ right of.
 59. 4. for expatiate r. expiate.
 77. 9. for quarelsome r. quarrellsome.
 104. 24. before seldom insert but.
 145. 3. for Presidents r. Precedents.
 160. 15. for *te* r. *se*.
 198. 20. after should ~~dele~~ to.
 207. 4. for Choic r. Choice.
 328. 32. for regard r. regards.
 339. 15. before *they* insert *that*.
 345. 4. after *then* insert *to*.
 353. ult. for Sect. II. r. Sect. III.
 354. 35. for waverily r. waveringly.

Page. Line.

355. pen. r. *App.* 2. and 17.
 397. 24. for Syllogisms r. Syllogism.
 405. 17. ~~dele~~ find.
 ibid. 20. ~~dele~~ may.
 409. 43. after in ~~dele~~ his.
 415. 26. after delivering ~~dele~~ the.
 418. 21. after have insert been.
 432. 1. for Experiment r. Experiments.
 447. 16. for Pitch r. Pith.
 458. 21. for *App.* 4. (5. 6.) r. *App.* 4. 5. 6.
 466. 2. for Dilation r. Dilatation.
 481. 34. Side Note, after directly ~~dele~~ to.
 485. 34. after ought insert not.
 502. 36. r. See Vol. III, p. 72.
 505. 36. for *Micrographia* r. *Micrographia*.

CONTENTS



CONTENTS

OF THE

SECOND VOLUME.

SUPPLEMENT VIII.

A Specimen of the PERSIAN MAGICK.

	Page		Page
<i>Political Rules, drawn from</i>		<i>That Force is strengthened by Uni-</i>	
<i>Physical Observations, a-</i>		<i>on: Exemplified by the Sun in</i>	
<i>mong the Persians,</i>	5	<i>Leo. The Moon,</i>	7
<i>Illustrated by Examples in the</i>		<i>The Durability of Liquors in large</i>	
<i>Celestial Bodies,</i>	ibid.	<i>Quantity; and the little Preja-</i>	
<i>The raising of Vapour, and return-</i>		<i>dice from general Earthquakes,</i>	ibid.
<i>ing of Rain,</i>	ibid.	<i>Union by Victory, exemplified in</i>	
<i>The General Affections taking</i>		<i>Natural Operations,</i>	ibid.
<i>place of particular,</i>	ibid.	<i>The Difference betwixt Composi-</i>	
<i>Sudden Changes usually attended</i>		<i>tion and Mixture,</i>	ibid.
<i>with Violence,</i>	6	<i>Examples of imperfect Mixtures,</i>	ibid.
<i>An Attempt to revive the Persian</i>		<i>Of perfect Mixtures,</i>	8
<i>Magick, in the Instance of uni-</i>		<i>The Doctrine applied to civil Po-</i>	
<i>ting Kingdoms,</i>	ibid.	<i>licy; and illustrated in the Ro-</i>	
<i>And particularly applied to the U-</i>		<i>man State,</i>	ibid.
<i>nion of England and Scotland,</i>	ibid.		

CONTENTS.

	Page		Page
<i>A contrary Course in other States has produced contrary Effects,</i>	9	<i>Privileges, Judicial Laws, and Manners,</i>	10
<i>Four Particulars required to the perfect Union of States; viz. (1.) Union in Name (2.) Language,</i>	ibid.	<i>(4.) Employments,</i>	ibid.
<i>(3.) Laws, under which come Pri-</i>		<i>Two capital Rules of Union in Government, drawn from Nature; viz. To allow Time; and suffer the greater to attract the less,</i>	ibid.

SUPPLEMENT IX.

A Specimen of Animated ASTRONOMY, &c.

<i>Nakedness and Simplicity required in the History of the Heavens,</i>	15	<i>The Enquiry to be founded on the immutable Laws of Nature,</i>	16
<i>The Design of this Enquiry is to form a genuine Philosophy of the Heavens,</i>	16	<i>An Exhortation to prosecute Telescopic Observations, &c.</i>	17
<i>Theories are endless, but Truth simple and one,</i>	ibid.	<i>Three Particulars to be regarded in a History of the Heavens; viz. (1.) the End; (2.) the Matter, and (3.) the Manner,</i>	18

SECT. I.

Philosophical Questions about the System of the World, to be cleared up in the particular History of the Heavens.

<i>The Reasons for proceeding here by an Induction of Questions,</i>	18	<i>Question 2. What is the Centre of the System? The Arguments for the Earth, and the Arguments for the Sun,</i>	21
<i>Question 1. Whether there be any System? The Opinions For and Against,</i>	19	<i>Inconveniencies in the Copernican System,</i>	ibid.
<i>The leading Questions that determine it,</i>	20	<i>The Earth's Motion urged against a System,</i>	ibid.
<i>The Use of coupling Questions together,</i>	ibid.		

Question

CONTENTS

	Page		Page
<i>Question 3. Whether the fixed Stars are not placed at different Altitudes?</i>	22	<i>The Procedure of Nature, in different Degrees of Change from one Body to another,</i>	ibid.
<i>The Answer upon Supposition of the Earth's Stability,</i>	ibid.	<i>The Heavens divided into three principal Parts,</i>	26
<i>Upon Supposition of the Earth's Motion,</i>	ibid.	<i>The gradual and starting Procedure used by turns in the Heavens,</i>	ibid.
<i>Question 4. How is the System connected? Whether the inter-stellar Regions are void of Matter? Answer For, and</i>	23	<i>Question 5. What is the Order of the Heavens?</i>	27
<i>Against,</i>	24	<i>Upon the System of the Ancients,</i>	ibid.
<i>Whether there be any Vacuum?</i>	ibid.	<i>Whether the Planes of the Planets do not intersect each other?</i>	ibid.
<i>Whether the Aether be continuous or contiguous?</i>	25	<i>Recapitulation</i>	28

S E C T. II

Physical Questions concerning the	Substance of the Celestial Bodies.
<i>The Necessity for uniting Physicks and Astronomy,</i>	28
<i>Question 1. Whether the Celestial Bodies are of the same Nature with the Terrestrial?</i>	29
<i>That the Terrestrial and Celestial Bodies may differ in Properties, and not in Essence,</i>	ibid.
<i>That the internal Parts of the Earth may be as immutable as the Heavens,</i>	ibid.
<i>And its Changes reach not below its more superficial Parts,</i>	ibid.
<i>That Earthquakes, &c. happen only near the Surface,</i>	30
<i>Earthquakes in the Earth, set against Comets in the Heavens,</i>	ibid.
<i>That possibly the internal Parts of the Earth suffer no Loss, and want no Repair,</i>	30
<i>The Mutability of the external Earth accidental,</i>	31
<i>The Arguments for the Immutability of the Heavens not conclusive, as no Change is visible,</i>	ibid.
<i>Visible Changes found in the Heavens,</i>	ibid.
<i>The Appearance of new Stars. Changes in the Sun. Alterations in Venus. Disappearance of Stars,</i>	32
<i>These Changes not justly assigned to the Air,</i>	33

CONTENTS.

Page	Page
<i>Order, and exact Motion, no Argument of Immutability in the Heavens,</i>	33
<i>Circular Motion no Argument of Eternity in the Heavens,</i>	ibid.
<i>Whether the Earth be capable of affecting the Heavens,</i>	ibid.
<i>That the Celestial Bodies may suffer from one another,</i>	34
<i>The fictitious Machinery of the Astronomers, to prevent Disorders in the Heavens,</i>	ibid.
<i>The Neutrality of the Scripture in this Matter,</i>	35
<i>The Extremities of the Heavens towards the Earth greatly infested,</i>	ibid.
<i>Heat denied by Aristotle. to the Celestial Bodies,</i>	ibid.
<i>Question 2. What are the Contents of the interstellar Spaces?</i>	36
<i>Perhaps a luminous Substance of the same Nature with the fixed Stars,</i>	ibid.
<i>Their Difference not well explained by Density in the Stars, and Rarity in the Æther,</i>	ibid.
<i>Question 3. Whether there are any compact and solid Globes besides the Earth?</i>	37
<i>Whether the Moon be a solid Body?</i>	ibid.
<i>Whether there be not other solid celestial Bodies, besides the Moon?</i>	38
<i>Many invisible dark Globes may be dispersed in the Heavens, ib.</i>	
<i>That solid Bodies do float in the Æther,</i>	39
<i>The Stars to be ranged into Suns and Moons;</i>	ibid.
<i>Question 4. Are the fixed Stars so many Fires?</i>	40
<i>The Fire of the fixed Stars different from culinary Fire, in respect of Situation,</i>	ibid.
<i>In respect of Substance;</i>	ibid.
<i>The Difference between celestial and culinary Fire,</i>	ibid.
<i>Flame in Æther permanent;</i>	41
<i>Difference betwixt the celestial and terrestrial Flame,</i>	ibid.
<i>Question 5. Are the Stars fed, and capable of Extinction?</i>	ibid.
<i>The Stars not fed after the Manner of common Fire,</i>	42
<i>Question 6. Whether the Stars increase, or diminish in their Wholes?</i>	ibid.
<i>False Appearances of the Stars, from the Interposition of the Clouds,</i>	ibid.
<i>Whether Stars are generated and dissipated?</i>	43
<i>Question 7. What is the Milky Way?</i>	ibid.
<i>Question 8. What is the Number of the Stars?</i>	44
<i>Question 9. What their Magnitude?</i>	ibid.
<i>Question 10. What their Figures?</i>	45
<i>Question 11. What their Distances?</i>	ibid.

SUPPLE-

CONTENTS.

SUPPLEMENT X.

A Free Censure, or Critique, of the more eminent
PHILOSOPHERS, &c.

S E C T. I.

The Arraignment of the Philosophers.

	Page		Page
A dmirati ^o n of the Ancients prejudicial to the Sciences,	51	The Arabian Physicians. Ferneli- us. Arnoldus de Villa Nova,	54
The Character of Aristotle, Car- dan, Ramus,	52	The Character of Paracelsus, ibid.	55
The Character of Aquinas, Plato, Cicero, Seneca, Plutarch and Ga- lien,	53	Severinus, and the Chemists,	56
		The Character of Hippocrates and Celsus,	56

S E C T. II.

The Judgment to be pass'd upon the ancient and modern Philosophers:
With the Intimation of a juster Way of Building up the Sciences.

Objections to the preceding Cha- racters,	57	That some Truths have been dis- covered by the Ancients,	59
Answered 1. That something con- siderable may have been done by the Ancients,	ibid.	The Difference betwixt Idola- trous Knowledge, and the True,	60
No wonder if the Ancients have fallen into Error,	58	The Writings of the Ancients so be still preserved,	ibid.
That the Author has been in ear- nest with his Characters,	59	The Author's View in the Whole,	61
Avoids more particular Confuta- tions, and why,	ibid.		

SUPPLE.

CONTENTS.

SUPPLEMENT XI.

*Interiora Rerum: Or, ESSAYS upon Moral, Oecono-
mical and Political SUBJECTS.*

SECT I.

ESSAYS upon moral SUBJECTS.

Essay I. Of Studies.

	Page
<i>THE Advantages of Learning,</i>	65
<i>Its Use and Abuse,</i>	ibid.
<i>Directions for its Use and Ac- quainment,</i>	66
<i>The different Effects of different Studies,</i>	ibid.
<i>The Defects of the Mind reme- died by Studies,</i>	ibid.

Essay II. Of Civil Ceremonies and Behaviour.

<i>Some Degree of Ceremony neces- sary,</i>	66
<i>How to be acquired,</i>	ibid.
<i>Where Ceremony is most useful,</i>	ibid.
<i>Not to be carried too far,</i>	ibid.

Essay III. Of Boldness.

<i>Action in Oratory compared to Boldness in Business,</i>	68
<i>The Bold are Empiricks in Po- licy,</i>	ib.
<i>And the Ridicule of the Wise,</i>	ibid.
<i>The proper Use of Boldness,</i>	ibid.

Essay IV. Of Simulation and Dis- simulation.

	Page
<i>The Use of Dissimulation,</i>	166
<i>Three Kinds of Dissimulation,</i>	69
<i>Viz. Taciturnity,</i>	ibid.
<i>Dissimulation,</i>	ibid.
<i>And Simulation,</i>	ibid.
<i>The Advantages of Simulation and Dissimulation,</i>	70
<i>Their Disadvantages,</i>	ibid.

Essay V. Of Friendship.

<i>Whether love of Solitude be a divine or brutal Virtue,</i>	70
<i>The Advantages of Friendship, viz. easing the Mind,</i>	71
<i>Improving the Understanding,</i>	ibid.
<i>Securing good Counsel,</i>	72
<i>This Counsel of two Kinds, re- garding (1.) Morality,</i>	ibid.
<i>And (2.) Business,</i>	ibid.
<i>The third Advantage of Friend- ship, viz. Assistance,</i>	ibid.

Essay

CONTENTS

Essay VI. Of the moral Duty of a Judge.

	Page
<i>The general Duty of a Judge,</i>	73
<i>His Office divided, as it relates to the contending Parties or Offenders,</i>	ibid.
<i>(2.) To the Advocates, or Council,</i>	74
<i>(3.) To the Clerks, and Officers,</i>	75
<i>(4.) To the Sovereign, or State,</i>	ib.

Essay VII. Of Fame or Rumours.

<i>The Poetical Description and Origin of Fame,</i>	76
<i>The Subject of Fame important in Politicks,</i>	ibid.
<i>The general Effects of false Rumours,</i>	ibid.

Essay VIII. Of Vain-Glory, or Ostentation.

<i>The Vanity of Boasters,</i>	77
<i>The Use of the Vain-glorious in Civil Life,</i>	ibid.
<i>In Martial Men,</i>	ibid.
<i>In the Learned,</i>	ibid.
<i>The prudent Way of shewing ones self to Advantage,</i>	78
<i>Summary of the Whole,</i>	ibid.

Essay IX. Of Praise.

<i>Praise of the Vulgar often false,</i>	78
<i>The false Colours of Praise,</i>	ibid.
<i>The Kinds of Praise,</i>	ibid.
<i>The good Effects of seasonable and moderate Praise,</i>	79
<i>How Praises may be graceful,</i>	ibid.

Essay X. Of Honour and Reputation.

	Page
<i>The true Means of procuring Honour,</i>	76
<i>The popular Means,</i>	ibid.
<i>Directions for acquiring Honour,</i>	ibid.
<i>The Degrees of supreme Honour,</i>	ibid.
<i>The Degrees of inferior Honour,</i>	80
<i>A rare Degree of Honour,</i>	ibid.

Essay XI. Of Adversity.

<i>The lofty Saying of Seneca upon Adversity,</i>	80
<i>Prosperity and Adversity compared,</i>	ibid.
<i>A Joy in Adversity,</i>	ibid.

Essay XII. Of the Vicissitude of Things.

<i>The Instability of Things on Earth,</i>	81
<i>The Causes of Oblivion,</i>	ibid.
<i>Deluges and Earthquakes leave a Remnant of People behind,</i>	ibid.
<i>Changes in the Heavens,</i>	ibid.
<i>Vicissitudes of Tears,</i>	82
<i>The Vicissitudes of Sects and Religions,</i>	ibid.
<i>Two Requisites to the Introduction of a new Religion,</i>	ibid.
<i>Three Ways of introducing new Sects,</i>	ibid.
<i>The Ways of suppressing new Sects,</i>	ibid.
<i>The Vicissitudes of Wars,</i>	ibid.
<i>The</i>	

CONTENTS.

	Page		Page
<i>The Causes of Wars; viz Dissolution of States,</i>	82	<i>The prudential Way of taking Revenge,</i>	86
<i>Their Enlargements,</i>	83	<i>Perfidious Friends how to be treated,</i>	ibid.
<i>A want of providing for the Natives,</i>	ibid.	<i>Publick Revenge fortunate, but not private,</i>	87
<i>Military States growing effeminate,</i>	ibid.		
<i>The Revolutions of Artillery and Fire-Arms,</i>	83	<i>Essay XVI. Of Envy.</i>	
<i>The Properties of Arms,</i>	ibid.	<i>Envy and Love have something like Fascination,</i>	ibid.
<i>The Progress of Military Conduct and Discipline,</i>	ibid.	<i>What Persons are most inclined to Envy; viz. the less virtuous,</i>	ibid.
<i>The Revolutions of Learning,</i>	ibid.	<i>The Inquisitive,</i>	ibid.
<i>Essay XIII. Of Truth.</i>		<i>The Nobility,</i>	ibid.
<i>The Nature of Truth in general,</i>	84	<i>The Deformed, Illegitimate, &c.</i>	ibid.
<i>The Nature of Divine and Philosophical Truth,</i>	ibid.	<i>The Unfortunate restored,</i>	88
<i>The Nature of Truth, or Veracity, in civil Life,</i>	ibid.	<i>Those desirous of many Excellencies,</i>	ibid.
<i>Essay XIV. Of Anger.</i>		<i>Relations and Collegues,</i>	ibid.
<i>Anger not to be extinguished,</i>	85	<i>The Persons least apt to be envied; viz. the Worthy,</i>	ibid.
<i>How to be moderated,</i>	ibid.	<i>The Nobility,</i>	ibid.
<i>How governed,</i>	ibid.	<i>Those who win their Honours hardly,</i>	ibid.
<i>Three Causes of Anger; viz. Sensibility of Injuries,</i>	ibid.	<i>The Cure of Envy,</i>	89
<i>Straining of the Intention,</i>	ibid.	<i>The Difference betwixt publick and private Envy,</i>	ibid.
<i>Over-Tenderness of Character,</i>	ib.	<i>Publick Envy like Infection,</i>	ibid.
<i>To prevent Anger from proving mischievous,</i>	86	<i>How known to be upon the Ministers, and how upon the Prince,</i>	ibid.
<i>How to raise or allay Anger in another,</i>	ibid.	<i>Is a restless Passion,</i>	ibid.
<i>Essay XV. Of Revenge.</i>		<i>Essay XVII. Of Love.</i>	
<i>The Imprudence of taking Revenge,</i>	ibid.	<i>Great Men least liable to extravagant Love,</i>	90
<i>Injuries seldom done for their own Sakes,</i>	ibid.	<i>Love tyrannizes over Things,</i>	ibid.
		Its	

CONTENTS

	Page		Page
<i>Its Tides,</i>	90	<i>That Atheism is rather in Mens</i>	
<i>Is a natural Principle in Man,</i>		<i>Words than Thoughts,</i>	95
<i>ibid.</i>	ibid.	<i>The Opinion of Epicurus upon the</i>	
		<i>Subject,</i>	ibid.
Essay XVIII. Of Goodness and		<i>The Savages have a Notion of</i>	
Good-Nature.		<i>God,</i>	ibid.
<i>Goodness and Good-Nature, what,</i>		<i>Who are Atheists,</i>	ibid.
	91	<i>The Causes of Atheism,</i>	ibid.
<i>Good-Nature implanted in Man-</i>		<i>The Disadvantages of Atheism to</i>	
<i>kind,</i>	ibid.	<i>particular Persons,</i>	96
<i>Rules for the Conduct of Good-</i>		<i>And to Nations,</i>	ibid.
<i>ness,</i>	ibid.		
<i>Good-Nature natural to some, and</i>		Essay XXIII. Of Miracles.	
<i>not to others,</i>	ibid.	<i>The Difference betwixt the Mira-</i>	
<i>The Marks and Tokens of Good-</i>		<i>cles of Christ and others,</i>	ibid.
<i>ness,</i>	92		
Essay XIX. Of Charity.		Essay XXIV. Of Imposture.	
<i>Three Degrees of Charity,</i>	ibid.	<i>Three Stiles of Imposture,</i>	97
<i>May have their Allay,</i>	ibid.		
Essay XX. Of joining Prudence		Essay XXV. Of Hypocrites.	
with Innocence.		<i>The Vaunts of Hypocrites, regard</i>	
<i>The Way of effectually counselling</i>		<i>Sacrifice rather than Mercy,</i>	ibid.
<i>the Vicious,</i>	93	<i>The counterfeit Resemblance of</i>	
		<i>Hypocrisy to Prayer,</i>	ibid.
Essay XXI. Of Superstition.		<i>The distinguishing Marks of Hy-</i>	
<i>Atheism less pernicious than Su-</i>		<i>pocrites,</i>	98
<i>perstition,</i>	ibid.		
<i>The Procedure of Superstition,</i>	94	Essay XXVI. Of Heresies.	
<i>Its Causes,</i>	ibid.	<i>Two Causes of Heresy,</i>	ibid.
<i>Its Deformity,</i>	ibid.	<i>The Difference between Supersti-</i>	
<i>Superstition to be avoided in Re-</i>		<i>tian and Atheism,</i>	ibid.
<i>formation,</i>	ibid.	<i>The Heresies that lessen the Pow-</i>	
		<i>er of God, are of three Degrees,</i>	99
Essay XXII. Of Atheism.			
<i>The Belief of a Deity necessary,</i>		Essay XXVII. Of the Church.	
<i>ibid.</i>	ibid.	<i>ibid.</i>	ibid.
		b	Essay

CONTENTS.

	Page		Page
Essay XXVIII. Of Death.	100	Great Minds despise it,	ibid.
The Fear of Death weak and childish,	100	How to diminish the Pain and Apprehension of Death,	ibid.

S E C T. II.

ESSAYS upon Oeconomical SUBJECTS.

Essay I. Of Youth and Age. Youth seldom passed to the best Advantage, 101 Impetuous Tempers not soon fit for Action, ibid. Vivacity in old Age makes a fit Composition for Business, ibid. The Difference betwixt the Errors of young Men and old, ib. A Mixture of Old and Young recommended in Business, ibid. Young Men more moral than old ones, 102 Three Kinds of early ripe Genius's, ibid.	Essay III. Of Parents and Children. The State of Parents compared with those that are without Children, ibid. The Affection of Parents often unequal to their Children, ibid. Parents to be liberal to their Children, 104 Emulation not to be stirred up betwixt Brothers, ibid. No great Difference betwixt Sons and Nephews, ibid. Parents to determine early the Course of Life for Children, ibid.
Essay II. Of Marriage and single Life. That childless Men have been beneficial to the Publick, ibid. The Causes of Mens living Single, ibid. The Advantages, and Disadvantages, of Celibacy, to the several Professions, ibid. The Tempers best disposed for Matrimony, 103 Why bad Husbands have often good Wives, ibid.	Essay IV. Of Education. The Power of Custom only matched by votary Resolution, ibid. Instances of the Tyranny of Custom, 105 Good Habits to be acquired early, ibid. The Force of Custom greatest in Society, ibid.

Essay

CONTENTS.

Essay V. Of Conversation and Discourse.

	Page
<i>Errors and Poverty in Conversation how to be avoided,</i>	105
<i>Jesting how to be regulated,</i>	106
<i>Rules for the Conduct of Discourse,</i>	ibid.
<i>The Inconveniencies of Suspicion,</i>	ibid.
<i>Is not always owing to Fear,</i>	107
<i>Its Remedies,</i>	ibid.
<i>An Explanation to be sought from the Person suspected,</i>	ibid.

Essay VI. Of Cunning.

<i>Cunning, what,</i>	ibid.
<i>The Cunning of the Eye,</i>	ibid.
<i>Cunning for procuring Dispatch in Business,</i>	108
<i>For quashing an Affair,</i>	ibid.
<i>For causing a Question,</i>	ibid.
<i>For relating disagreeable Matters,</i>	ibid.
<i>To avoid being seen,</i>	ibid.
<i>To gain an Opportunity,</i>	ibid.
<i>To lay a Bait for one's Adversary,</i>	ibid.
<i>The turning of Cat in Pan,</i>	109
<i>The Artifice of Story-telling,</i>	ibid.
<i>To procure an Answer in the Words of another,</i>	ibid.
<i>The wanting an Opportunity to speak,</i>	ibid.
<i>Sudden bold Questions,</i>	ibid.
<i>A List to be made of the petty Points of Cunning,</i>	ibid.
<i>Some Men fitter for Cunning than real Business,</i>	ibid.

Essay VII. Of Self-Cunning.

	Page
<i>Self-Cunning not to be over-indulged,</i>	ibid.
<i>This Cunning suits better with Princes than private Persons,</i>	ibid.
<i>No prime Officers to be chose of this Character,</i>	110
<i>The Self-Cunning often unfortunate,</i>	ibid.

Essay VIII. Of affecting the Appearance of Wisdom.

<i>That Men differ in Point of Wisdom,</i>	ibid.
<i>The Artifices of those who affect to seem wise,</i>	ibid.
<i>The seeming-wise Men not to be trusted in serious Business,</i>	111

Essay IX. Of Delays.

<i>The Nature of Fortune,</i>	ibid.
<i>The proper Conduct in Dangers,</i>	ibid.
<i>Dangers not to be over-rated, or provoked,</i>	ibid.
<i>The Ripeness of Opportunity to be seized,</i>	ibid.

Essay X. Of Dispatch in Business.

<i>Affected Dispatch pernicious,</i>	112
<i>The false Dispatch,</i>	ibid.
<i>The true,</i>	ibid.
<i>To procure Dispatch in the Relation,</i>	ibid.
<i>By cutting off superfluous Speeches,</i>	ibid.

CONTENTS

	Page		Page
<i>By a right Disposal of Business,</i>	ibid.	<i>Where Liberality may be well placed,</i>	117
<i>The three Parts of Business, how to be managed,</i>	113	<i>Essay XV. Of Usury, or lending upon Interest.</i>	
<i>Business to proceed upon some Plan,</i>	ibid.	<i>The best Way of understanding the Nature of the Subject,</i>	ibid.
<i>Essay XI. Of Cares.</i>		<i>The Disadvantages of Usury,</i>	ibid.
<i>Cares to be moderated,</i>	ibid.	<i>Its Advantages,</i>	ibid.
<i>Two Excesses of Cares,</i>	ibid.	<i>Its Regulation, by introducing two Sorts,</i>	118
<i>The second Excess,</i>	ibid.	<i>The First,</i>	ibid.
<i>Essay XII. Of Hope.</i>		<i>The Second,</i>	ibid.
<i>Hope and Fear deceitful Passions,</i>	ibid.	<i>An Objection to the Proposal answered,</i>	ibid.
<i>Hope almost useless in Cases of Prosperity,</i>	114	<i>Essay XVI. Of Riches.</i>	
<i>The pernicious Effect of Hope in Adversity,</i>	ibid.	<i>Riches the Baggage of Virtue,</i>	119
<i>Mens Minds distempered by Hope,</i>	ibid.	<i>Cautions against growing Rich too soon,</i>	ibid.
<i>In what Cases Hope may be allowed,</i>	ibid.	<i>The Ways of acquiring Riches,</i>	ibid.
<i>The proper Object of Hope,</i>	115	<i>Easy to raise a great Estate, when a small one is acquired,</i>	ibid.
<i>Essay XIII. Of Fortune.</i>		<i>The honest and dishonest Profits,</i>	120
<i>Fortune often accidental,</i>	ibid.	<i>Jobbing,</i>	ibid.
<i>Certain Habits procure Fortune,</i>	ibid.	<i>Partnership,</i>	ibid.
<i>The Effects of sudden and exercised Fortune,</i>	ibid.	<i>Usury,</i>	ibid.
<i>How to decline Envy,</i>	ibid.	<i>Inventors,</i>	ibid.
<i>A smooth Fortune procurable,</i>	116	<i>Venturers,</i>	ibid.
<i>Essay XIV. Of Expence.</i>		<i>Monopolies,</i>	ibid.
<i>Expences how to be regulated,</i>	ibid.	<i>Posts of Honour,</i>	ibid.
<i>Accompts to be inspected,</i>	ibid.	<i>Poaching for Executorships,</i>	ibid.
<i>Expences to be balanced,</i>	ibid.	<i>Riches, neither to be despised nor niggardly used,</i>	ibid.
<i>The Way of redeeming a Mortgaged Estate,</i>	ibid.	<i>Riches, how to be disposed of,</i>	ibid.

Essay

CONTENTS.

	Page
Essay XVII. Of Nature, and natural Dispositions in Men.	ibid.
Page	
Nature only subdued by Custom,	121
How the Conquest is to be obtained over Nature,	ibid.
How, when Nature is strong,	ibid.
Intermissions to be used along with Endeavours,	ibid.
Victory over Nature not to be trusted,	ibid.
Mens natural Temper, how discovered,	ibid.
The natural Temper to be suited with the Life,	122
Studies against the Inclination to be appointed,	ibid.
Every Man's Nature affords Herbs or Weeds,	ibid.
Essay XVIII. Of Deformity.	
Deformed Persons, how revenged of Nature,	ibid.
Deformity, not to be considered as a Sign, but a Cause,	ibid.
Why deformed Persons are bold,	ibid.
And industrious,	ibid.
The Advantages of Deformity,	ibid.
Why Eunuchs and deformed Persons are employed by Princes,	ibid.
Whence deformed Persons sometimes excel,	ibid.
Essay XIX. Of Beauty.	
Great Virtues seldom joined with great Beauty,	123
The Essentials of Beauty,	ibid.
Why Persons of middle Age are sometimes more beautiful,	ibid.
The Advantages and Disadvantages of Beauty,	ibid.
Essay XX. Of the Rules of Health,	124, and 125.
Essay XXI. Of Travelling,	ibid.
Young Men to travel under Tutors,	ibid.
Diaries to be kept of Travels,	ibid.
The Things to be observed in travelling,	ibid.
How to travel to advantage,	126
The Acquaintance to be made,	ib.
Quarrels to be avoided,	ibid.
The Conduct to be observed after returning,	ibid.
Essay XXII. Of Buildings.	
Convenience the principal End of Building,	127
A proper Situation to be chose,	ibid.
The Things included under bad Situation,	ibid.
The Model of a Royal Palace proposed,	ibid.
A perfect Palace to have two Parts, joined by a Tower,	ibid.
A Banquet-Part,	128
And a Household-Part,	ibid.
The Structure of the Tower and Stairs,	ibid.
The Court-Yard, how to be built,	ibid.
The ornamental Parts of the Banquet and Household-Apartments,	ibid.
Garden	

CONTENTS.

	Page		Page
<i>Garden and Grotto,</i>	129	<i>The Walks and Mount,</i>	ibid.
<i>Infirmaries,</i>	ibid.	<i>Fountains,</i>	ibid.
<i>Open Galleries,</i>	ibid.	<i>The Heath,</i>	133
<i>Cabinets,</i>	ibid.	<i>Walks,</i>	ibid.
<i>Fountains,</i>	ibid.	<i>The Walks of the main Garden,</i>	ibid.
<i>Three Courts,</i>	ibid.	<i>Aviaries,</i>	134
<i>Terrasses,</i>	ibid.	<i>Conclusion,</i>	ibid.
<i>Offices,</i>	130		
Essay XXIII. Of Gardens.		Essay XXIV. Of latent Prophecies.	
<i>Gardening affords a pure kind of Pleasure,</i>	ibid.	<i>Secret Prophecies,</i>	ibid.
<i>Royal Gardens to produce Monthly,</i>	ibid.	<i>That of the Pythonissa to Saul,</i>	ibid.
<i>For December and January,</i>	ibid.	<i>Seneca of America,</i>	ibid.
<i>February,</i>	ibid.	<i>Polycrates's Daughter,</i>	ibid.
<i>March,</i>	ibid.	<i>Philip of Macedon,</i>	135
<i>April,</i>	ibid.	<i>The Phantom to Brutus,</i>	ibid.
<i>May and June,</i>	ibid.	<i>That of a Ruler coming out of Judea,</i>	ibid.
<i>July,</i>	ibid.	<i>That of Domitian a little before his Death,</i>	ibid.
<i>August,</i>	ibid.	<i>Henry the Sixth,</i>	ibid.
<i>September,</i>	131	<i>That of an Astrologer, of a King of France,</i>	ibid.
<i>October and November,</i>	ibid.	<i>A supposed Prediction of the Change of the King of England's Title,</i>	ibid.
<i>What Plants yield little Odour, as they grow,</i>	ibid.	<i>Another of the Spanish Invasion,</i>	ibid.
<i>Those that perfume the Air most, when growing,</i>	ibid.	<i>That of Regiomontanus,</i>	ibid.
<i>Those that do it when trod on,</i>	ibid.	<i>Cleon's Dream,</i>	136
<i>The Platform of a Garden Royal,</i>	ibid.	<i>The Judgment to be made of these Prophecies,</i>	ibid.
<i>The Green, with its two side Walks,</i>	ibid.	<i>Whence they have been encouraged,</i>	ibid.
<i>The Form of the Garden,</i>	ibid.		
<i>The great Hedge, how to be raised,</i>	132		
<i>The Disposal of the Garden,</i>	ibid.		

CONTENTS.

SECT. III.

ESSAYS upon Political SUBJECTS.

Essay I. Of State Counsel.

	Page
<i>The Advantages of Counsel to Princes,</i>	137
<i>Its Inconveniencies,</i>	ibid.
<i>The divulging of Secrets,</i>	ibid.
<i>Cabinet Councils,</i>	ibid.
<i>Lessening of Authority,</i>	138
<i>Sinister Counsel,</i>	ibid.
<i>Persons to be considered as well as Things,</i>	ibid.
<i>The Regulation of Councils,</i>	ibid.
<i>Committees,</i>	139
<i>Standing Commissions,</i>	ibid.
<i>The Difference between long and square Council Tables,</i>	ibid.
<i>The Conduct to be observed by a King in Council,</i>	ibid.

Essay II. Of the Regulation of Empire.

<i>The State of Kings,</i>	ibid.
<i>The true Temper of Empire,</i>	140
<i>The modern Politicks imperfect,</i>	ibid.
<i>The Affairs of Princes,</i>	ibid.
<i>Regard to their Neighbours,</i>	ibid.
<i>Wives,</i>	141
<i>Children,</i>	ibid.
<i>Prelates and Clergy,</i>	ibid.
<i>Nobles,</i>	ibid.
<i>Gentry,</i>	ibid.
<i>Merchants,</i>	ibid.
<i>The Common People,</i>	142

<i>And the Soldiery,</i>	ibid.
<i>Two Admonitions to Kings,</i>	ibid.

Essay III. Of Ambition.

<i>The Nature of Ambition,</i>	ibid.
<i>The Uses of ambitious Men,</i>	ibid.
<i>How ambitious Men are to be curbed,</i>	143
<i>A second Means,</i>	ibid.
<i>Different Kinds of Ambition,</i>	ibid.
<i>The Advantages of Honour,</i>	ibid.

Essay IV. Of Great Place.

<i>The Inconveniencies of Great Place,</i>	144
<i>Men in high Posts only happy by Report,</i>	ibid.
<i>The Advantages of Great Place,</i>	ibid.
<i>Precepts for Men in Office,</i>	ibid.
<i>The Vices attending the Exercise of Power; viz. Delays,</i>	145
<i>Bribery,</i>	ibid.
<i>Roughness,</i>	ibid.
<i>Facility,</i>	ibid.
<i>Place shews Men,</i>	ibid.
<i>The Way of rising,</i>	146
<i>Rules for Behaviour in Office,</i>	ibid.

Essay V. Of Followers and Friends.

<i>Followers of what Sort to be chose, and to what entitled,</i>	ibid.
<i>Factions.</i>	

CONTENTS

	Page		Page
<i>Faction Followers,</i>	ibid.	<i>Every Suit attended with a Right,</i>	ibid.
<i>Boasting Followers,</i>	ibid.	<i>Opinion to be taken in doubtful Suits,</i>	ibid.
<i>Spying Followers,</i>	ibid.	<i>Plain-dealing in Suits, esteemed a Favour,</i>	ibid.
<i>Followers of the same Order with the Patron,</i>	ibid.	<i>The being first in a Petition of no great Weight,</i>	150
<i>The most honourable and useful Followers,</i>	ibid.	<i>Cautions to be observed in Petitioning,</i>	ibid.
<i>Followers how to be used,</i>	ibid.	<i>Where a great Thing, or a less, should be asked,</i>	ibid.
<i>Cautions required with regard to Followers and Friends,</i>	147	<i>Letters of Recommendation,</i>	ibid.
<i>To take Advice of a few,</i>	ibid.	<i>General Contrivers of Suits,</i>	ibid.
<i>Little Friendship in the World,</i>	ibid.		
Essay VI. Of Nobility.			
<i>Nobility necessary in Monarchies, not in Republicks,</i>	ibid.	Essay IX. Of Negotiating.	
<i>The Advantage of Republicks,</i>	ib.	<i>When best to negotiate by Letter, and when in Person,</i>	151
<i>The Advantages and Inconveniences of Nobility to a Kingdom,</i>	ibid.	<i>The Persons to be employed in negotiating,</i>	ibid.
<i>The Advantage of Nobility in particular Persons,</i>	148	<i>Directions for negotiating to advantage,</i>	ibid.
<i>The Founders of noble Families often more virtuous than their Descendants,</i>	ibid.	<i>The Ways of moulding Men,</i>	ibid.
<i>The Advantage of using Nobles to a King,</i>	ibid.	<i>How to negotiate with the Crafty,</i>	ibid.
Essay VII. Of Masques and Publick Entertainments.			
<i>The Musick Part, how to be conducted,</i>	ibid.	<i>Difficult Negotiations not to be hurried,</i>	ibid.
<i>The Scenes,</i>	ibid.	Essay X. Of Plantations.	
<i>The Dresser,</i>	ibid.	<i>Plantations heroical Works,</i>	ibid.
<i>The Anti-masque,</i>	149	<i>Hasty Profits the Bane of Plantations,</i>	ibid.
<i>Perfumes,</i>	ibid.	<i>Not to People with Felons, Out-laws, &c.</i>	152
Essay VIII. Of Petitioners, or Suitors.			
<i>The Double-dealing practised in Petitions,</i>	ibid.	<i>The Trades to plant with,</i>	ibid.
		<i>The Method of Planting,</i>	ibid.
		<i>The Beasts and Birds to be carried over,</i>	ibid.
		<i>Husbanding required in the Provisions,</i>	ibid.
		<i>The</i>	

CONTENTS.

	Page		Page
<i>The Commodities to be sought after,</i>	175	<i>Farther Prognosticks of Seditions,</i>	ibid.
<i>The Government of the Plantation,</i>	153	<i>Viz. When Princes side with Parties,</i>	ibid.
<i>The Colony not to be over-stock'd,</i>	ibid.	<i>When they lose their Reverence,</i>	157
<i>To build from the Sea,</i>	ibid.	<i>The Matter of Sedition,</i>	ibid.
<i>The native Savages how to be treated,</i>	ibid.	<i>Poverty,</i>	ibid.
<i>When Women are to be admitted,</i>	ibid.	<i>And Discontent,</i>	ibid.
<i>A heinous Thing to abandon an advanced Plantation,</i>	ibid.	<i>The Causes of Sedition,</i>	158
		<i>Its Remedies</i>	ibid.
Essay XL. Of Innovations.		<i>The Prevention of Poverty by regulating Trade, &c.</i>	ibid.
<i>Innovations the mishap'd Births of Time,</i>	154	<i>Preventing a Surcharge of People,</i>	ibid.
<i>Medicine and Time Innovators,</i>	ibid.	<i>Trade consists in three Things,</i>	ibid.
<i>The Advantages of Custom and Change,</i>	ibid.	<i>The Money of a Kingdom not to be engrossed,</i>	159
<i>To be tenacious of Custom as pernicious as Innovation,</i>	ibid.	<i>The Removing of Discontents,</i>	ibid.
<i>New Experiments not to be rashly tried in States,</i>	ibid.	<i>To give them vent,</i>	ibid.
Essay XII. Of Factions or Parties.		<i>To feed Men with Hopes,</i>	ibid.
<i>How to deal with Factions,</i>	155	<i>To suffer no fit Head of Faction,</i>	ibid.
<i>The Procedure of Factions,</i>	ibid.	<i>To sow Distrust among Factions,</i>	160
<i>Traitors in Faction often successful,</i>	ibid.	<i>Princes to beware of short poignant Sentences,</i>	ibid.
<i>Kings not openly to side with any Faction,</i>	ibid.	<i>Kings to have select military Officers in constant waiting,</i>	ibid.
<i>Factions how to be govern'd by Princes,</i>	156	Essay XIV. Of Unity in Religion.	
Essay XIII. Of Seditions and Troubles.		<i>Religion to be kept within the Bounds of Unity and Charity,</i>	161
<i>The Prognosticks of State Tempests,</i>	ibid.	<i>Two Fruits of Unity in Religion,</i>	ibid.
<i>Rumours how best suppressed,</i>	ibid.	<i>Heresies and Schisms the greatest Scandals in the Church,</i>	ibid.

CONTENTS.

	Page		Page
<i>Factionous Followers,</i>	ibid.	<i>Every Suit attended with a Right,</i>	ibid.
<i>Boasting Followers,</i>	ibid.	<i>Opinion to be taken in doubtful Suits,</i>	ibid.
<i>Spying Followers,</i>	ibid.	<i>Plain-dealing in Suits, esteemed a Favour,</i>	ibid.
<i>Followers of the same Order with the Patron,</i>	ibid.	<i>The being first in a Petition of no great Weight,</i>	150
<i>The most honourable and useful Followers,</i>	ibid.	<i>Cautions to be observed in Petitioning,</i>	ibid.
<i>Followers how to be used,</i>	ibid.	<i>Where a great Thing, or a less, should be asked,</i>	ibid.
<i>Cautions required with regard to Followers and Friends,</i>	147	<i>Letters of Recommendation,</i>	ibid.
<i>To take Advice of a few,</i>	ibid.	<i>General Contrivers of Suits,</i>	ibid.
<i>Little Friendship in the World,</i>	ibid.		
Essay VI. Of Nobility.			
<i>Nobility necessary in Monarchies, not in Republicks,</i>	ibid.	Essay IX. Of Negotiating.	
<i>The Advantage of Republicks,</i>	ib.	<i>When best to negotiate by Letter, and when in Person,</i>	151
<i>The Advantages and Inconveniences of Nobility to a Kingdom,</i>	ibid.	<i>The Persons to be employed in negotiating,</i>	ibid.
<i>The Advantage of Nobility in particular Persons,</i>	148	<i>Directions for negotiating to advantage,</i>	ibid.
<i>The Founders of noble Families often more virtuous than their Descendants,</i>	ibid.	<i>The Ways of moulding Men,</i>	ibid.
<i>The Advantage of using Nobles to a King,</i>	ibid.	<i>How to negotiate with the Crafty,</i>	ibid.
		<i>Difficult Negotiations not to be hurried,</i>	ibid.
Essay VII. Of Masques and Publick Entertainments.			
<i>The Musick Part, how to be conducted,</i>	ibid.	Essay X. Of Plantations.	
<i>The Scenes,</i>	ibid.	<i>Plantations heroical Works,</i>	ibid.
<i>The Dresser,</i>	ibid.	<i>Hasty Profits the Bane of Plantations,</i>	ibid.
<i>The Anti-masque,</i>	149	<i>Not to People with Felons, Out-laws, &c.</i>	152
<i>Perfumes,</i>	ibid.	<i>The Trades to plant with,</i>	ibid.
		<i>The Method of Planting,</i>	ibid.
Essay VIII. Of Petitioners, or Suitors.			
<i>The Double-dealing practised in Petitions,</i>	ibid.	<i>The Beasts and Birds to be carried over,</i>	ibid.
		<i>Husbanding required in the Provisions,</i>	ibid.
		<i>The</i>	

CONTENTS

	Page		Page
<i>The Commodities to be sought after,</i>	175	<i>Farther Prognosticks of Seditions,</i>	ibid.
<i>The Government of the Plantation,</i>	153	<i>Viz. When Princes side with Parties,</i>	ibid.
<i>The Colony not to be over-stock'd,</i>	ibid.	<i>When they lose their Reverence,</i>	157
<i>To build from the Sea,</i>	ibid.	<i>The Matter of Sedition,</i>	ibid.
<i>The native Savages how to be treated,</i>	ibid.	<i>Poverty,</i>	ibid.
<i>When Women are to be admitted,</i>	ibid.	<i>And Discontent,</i>	ibid.
<i>A heinous Thing to abandon an advanced Plantation,</i>	ibid.	<i>The Causes of Sedition,</i>	158
		<i>Its Remedies</i>	ibid.
Essay XI. Of Innovations.		<i>The Prevention of Poverty by regulating Trade, &c.</i>	ibid.
<i>Innovations the mishap'd Births of Time,</i>	154	<i>Preventing a Surcharge of People,</i>	ibid.
<i>Medicine and Time Innovators,</i>	ibid.	<i>Trade consists in three Things,</i>	ibid.
<i>The Advantages of Custom and Change,</i>	ibid.	<i>The Money of a Kingdom not to be engrossed,</i>	159
<i>To be tenacious of Custom as pernicious as Innovation,</i>	ibid.	<i>The Removing of Discontents,</i>	ibid.
<i>New Experiments not to be rashly tried in States,</i>	ibid.	<i>To give them vent,</i>	ibid.
Essay XII. Of Factions or Parties.		<i>To feed Men with Hopes,</i>	ibid.
<i>How to deal with Factions,</i>	155	<i>To suffer no fit Head of Faction,</i>	ibid.
<i>The Procedure of Factions,</i>	ibid.	<i>To sow Distrust among Factions,</i>	160
<i>Traitors in Faction often successful,</i>	ibid.	<i>Princes to beware of short poignant Sentences,</i>	ibid.
<i>Kings not openly to side with any Faction,</i>	ibid.	<i>Kings to have select military Officers in constant waiting,</i>	ibid.
<i>Factions how to be govern'd by Princes,</i>	156	Essay XIV. Of Unity in Religion.	
Essay XIII. Of Seditions and Troubles.		<i>Religion to be kept within the Bounds of Unity and Charity,</i>	161
<i>The Prognosticks of State Tempests,</i>	ibid.	<i>Two Fruits of Unity in Religion,</i>	ibid.
<i>Rumours how best suppressed,</i>	ibid.	<i>Heresies and Schisms the greatest Scandals in the Church,</i>	ibid.

Differ-

CONTENTS.

	Page		Page
<i>Different Opinions of Hereticks</i>	161	<i>Viz. the Lighter,</i>	ibid.
<i>occasion Religion to be ridiculed,</i>	ibid.	<i>And the more Subtile,</i>	ibid.
<i>The Fruit of Unity within the</i>	162	<i>Two false Unities,</i>	163
<i>Church,</i>	ibid.	<i>The Means of procuring Unity,</i>	ibid.
<i>The Limits of Unity,</i>	162	<i>Persecution how to be opposed,</i>	ibid.
<i>Two Kinds of Controversy to be</i>	ibid.		
<i>avoided in Religion,</i>	ibid.		

SUPPLEMENT XII.

A Discourse of War.

S E C T. I.

Of the just Causes of WAR.

<i>The Requisites of a War,</i>	168	<i>Exemplified,</i>	ibid.
<i>Three Grounds of War,</i>	ibid.	<i>Strengthened by Authorities,</i>	172
<i>The first Ground,</i>	ibid.	<i>By the Policy of the wisest Na-</i>	ibid.
<i>The Judgment upon a War to be</i>	169	<i>tions,</i>	ibid.
<i>declear,</i>	ibid.	<i>Princes,</i>	173
<i>The Case stated,</i>	ibid.	<i>And Divines,</i>	173
<i>Exemplified,</i>	ibid.	<i>That Britain has a just Cause of</i>	ibid.
<i>Wars are Revenges and Repara-</i>	170	<i>Fear from Spain,</i>	ibid.
<i>tions,</i>	ibid.	<i>The encreasing Power of Spain,</i>	174
<i>The Title of Proscription,</i>	ibid.	<i>The Eye of Spain upon England</i>	ibid.
<i>The Seat of a War free after In-</i>	ibid.	<i>from without,</i>	ibid.
<i>diction,</i>	ibid.	<i>Their Practices within,</i>	175
<i>The second Ground of a War, viz.</i>	171	<i>The third Ground of War,</i>	176
<i>a just Fear,</i>	171		

S E C T.

CONTENTS.

S.E.C.T. II

Of the Force requisite to a WAR.

Page	Page
<i>The Forces ballanced betwixt Spain and Britain,</i>	<i>The Fight of Sir Richard Grenvil, Commander of the Revenge, in 1591,</i>
<i>Spain not an Over-match for England, Shewn by Experience,</i>	<i>ibid.</i>
<i>The Battle of Rimenant, in 1578,</i>	<i>Cadiz taken by the English, in 1596,</i>
<i>ibid.</i>	<i>ibid.</i>
<i>Ireland invaded by the Pope, in 1580,</i>	<i>The Battle of Newpont, in 1600,</i>
<i>ibid.</i>	<i>ibid.</i>
<i>The Retreat of Gaunt, in 1582,</i>	<i>The Battle of Kingsale, in 1601,</i>
<i>ibid.</i>	<i>ibid.</i>
<i>The taking of Carthegena, in 1585,</i>	<i>The Enterprize of Panama, 1585</i>
<i>ibid.</i>	<i>The State of Spain compared, in 1588 and 1624. ibid.</i>
<i>Sir Francis Drake's Expedition against the Spaniards, in 1587,</i>	<i>ibid.</i>
<i>ibid.</i>	<i>The Spaniards easier to quit than imagined, 187</i>
<i>The Spanish Armada, in 1588,</i>	<i>The Advantage of Britain over Spain in Point of Situation, ibid.</i>
<i>179</i>	<i>Courage, and native Soldiers, ibid.</i>
<i>Sail from the Groyne, 180</i>	<i>The Riches of Spain precarious, 188</i>
<i>Anchor at Calais, ibid.</i>	<i>A Sea War with Spain gainful, ibid.</i>
<i>Fail of their Land-Forces, 181</i>	<i>Spain destitute of fire Confederates, ibid.</i>
<i>Chased from Graveling, ibid.</i>	
<i>Their Defeat, ibid.</i>	
<i>Spain invaded by the English, in 1589,</i>	<i>182</i>

SUPPLEMENT XIII.

The Prudent Statesman ; or, The Office of Prime Ministers.

The Necessity and Use of Prime Ministers, 193 *A General Direction for their Conduct,*

CONTENTS.

	Page		Page
<i>The Office of Prime Ministers distributed,</i>	194	<i>Not to be pricke'd or excus'd for Money,</i>	198
I.		<i>Lieutenants and Deputy-Lieutenants of Counties,</i>	ibid.
<i>Religious Matters,</i>	ibid.	<i>Justices of Peace,</i>	ibid.
<i>Bishops,</i>	ibid.	<i>Not to be chose for Favour,</i>	ibid.
<i>Deans, Canons, &c.</i>	ibid.	<i>Justice and Mercy how to be mix'd,</i>	ibid.
<i>Ceremonies of the Church,</i>	195	<i>The Court of Parliament,</i>	ibid.
<i>The Persons of Ecclesiasticks,</i>	ibid.	<i>Are a Council to the King,</i>	ibid.
<i>The Patrimony of the Church,</i>	ibid.	<i>Laws how pass'd,</i>	199
<i>Colleges and Schools,</i>	ibid.	<i>The House of Peers a Court of Judicature,</i>	ibid.
II.		<i>The Power of the House of Commons,</i>	ibid.
<i>Matters of Law,</i>	ibid.	<i>Use of the Parliament,</i>	ibid.
<i>No Arbitrary Power to be allow'd,</i>	ibid.	<i>The Civil Law,</i>	ibid.
<i>Judges,</i>	ibid.	<i>Civilians,</i>	ibid.
<i>None to interpose in Judicial Cases,</i>	196	III.	
<i>Circuits,</i>	ibid.	<i>Two Sorts of Counsellors,</i>	ibid.
<i>Charges to be given the Judges before their Circuits,</i>	ibid.	<i>The Council Table,</i>	200
<i>The Judges to continue longer in their Circuits,</i>	ibid.	<i>The Council how to be chose,</i>	ibid.
<i>Sheriffs of the Counties to attend the Judges,</i>	ibid.	<i>Their Number to be limited,</i>	ibid.
<i>No Place of Jurisdiction to be sold,</i>	197	<i>Deputy Privy Counsellors,</i>	ibid.
<i>The Puisne to be rais'd to Chief Judges,</i>	ibid.	<i>Privy Counsellors not to give Opinion of the Sudden,</i>	ibid.
<i>Serjeants at Law,</i>	ibid.	<i>Resolutions not to be precipitated,</i>	ibid.
<i>The King's Council at Law,</i>	ibid.	<i>The King to be present,</i>	ibid.
<i>Attorney and Sollicitor General,</i>	ibid.	<i>Secrecy required in Privy-Counsellors,</i>	ibid.
<i>Attorney of the Wards and Dutchy,</i>	ibid.	<i>Counsellors how to be chosen,</i>	201
<i>The Welsh Judges,</i>	ibid.	<i>The great Offices and Officers,</i>	ibid.
<i>Contentions about the Jurisdiction of Courts to be prevented,</i>	ibid.	IV.	
<i>The High Sheriffs,</i>	ibid.	<i>Embassies,</i>	ibid.
		<i>Of Ceremony,</i>	ibid.
		<i>Embassies of Business,</i>	ibid.
		<i>The Attendants of Ambassadors,</i>	ibid.
		Mercan-	

CONTENTS.

	Page		Page
<i>Mercantile Negotiations,</i>	202	<i>Grazing,</i>	ibid.
<i>Residents,</i>	ibid.	<i>Mining,</i>	ibid.
<i>Their Instructions,</i>	ibid.	<i>Fisheries,</i>	ibid.
<i>The Education of Foreign Mini-</i>	ibid.	<i>Merchandizing,</i>	ibid.
<i>sters,</i>	ibid.	<i>Monopolies to be prevented,</i>	ibid.
V.		VII.	
<i>Wars,</i>	ibid.	<i>Plantations,</i>	207
<i>To prevent an Invasion,</i>	ibid.	<i>Choice of the Place for Planta-</i>	ibid.
<i>Naval Stores,</i>	203	<i>tions,</i>	ibid.
<i>Tackling,</i>	ibid.	<i>Their Governors,</i>	ibid.
<i>Ship-building,</i>	ibid.	<i>Their Commission and Instruction,</i>	ibid.
<i>Ammunition,</i>	ibid.	<i>Their Laws,</i>	ibid.
<i>Sailors,</i>	ibid.	<i>Their Religion,</i>	ibid.
<i>Sea-Officers,</i>	ibid.	<i>Their Forces and Defence,</i>	ibid.
<i>Foreign Wars,</i>	ibid.	<i>Their Beginning,</i>	208
<i>Alliance with Holland,</i>	ibid.	<i>Their Employs,</i>	ibid.
<i>Civil War,</i>	ibid.	<i>Trades,</i>	ibid.
<i>Money,</i>	204	<i>Shipping,</i>	ibid.
<i>Magazines,</i>	ibid.	<i>No Out-laws, &c. to be admitted,</i>	ibid.
<i>Experienced Commanders,</i>	ibid.	<i>Their Trade to be regulated,</i>	ibid.
<i>The Conduct to be observed when a</i>	ibid.	<i>Commissioners of Plantations,</i>	ibid.
<i>Civil War is ended,</i>	ibid.	<i>The Duties how to be laid,</i>	ibid.
VI.		VIII.	
<i>Trade at Home,</i>	ibid.	<i>The Court,</i>	209
<i>Tillage,</i>	ibid.	<i>Kings how to be advised,</i>	ibid.
<i>Improvements in Husbandry,</i>	ibid.	<i>The Conduct of the Ministers,</i>	ibid.
<i>Gardening,</i>	205	<i>Great Officers of the Household,</i>	ibid.
<i>Hop-Tards, Woad, &c.</i>	ibid.	<i>The other Ministerial Officers,</i>	ibid.
<i>Woods,</i>	ibid.	<i>The White Stuffs and Green Cloth,</i>	ibid.
<i>Draining,</i>	ibid.	<i>The Purveyance,</i>	ibid.
<i>Forests and Commons to be impro-</i>	ibid.	<i>The Revenues,</i>	ibid.
<i>ved,</i>	ibid.	<i>No Officers to be rewarded with</i>	210
<i>Navigable Rivers,</i>	ibid.	<i>Forfeitures,</i>	ibid.
<i>Sowing of Hemp and Flax,</i>	ibid.	<i>Masques and Publick Entertain-</i>	ibid.
<i>Luxury to be restrained in Cloaths,</i>	ibid.	<i>ments,</i>	ibid.
<i>And Diet,</i>	ibid.		
<i>The native Commodities to be used,</i>	206		
<i>English Laws to be encouraged,</i>	ibid.		

SUPPLE-

CONTENTS.

SUPPLEMENT XIV.

A Proposal for a new Digest of the Laws of England.

	Page		Page
<i>Kings to perpetuate their People's Good by Laws.</i>	213	<i>Inconvenience of the Law of England,</i>	ibid.
<i>The Use of Laws with regard to Princes,</i>	ibid.	<i>To know when the Defect is in the Law,</i>	218
<i>Laws the best Means of perpetuating the Memory of Princes,</i>	ibid.	<i>Penal Laws,</i>	ibid.
<i>Examples of the Thing in History,</i>	214	<i>Accumulation of Statutes,</i>	ibid.
<i>The Kings of Rome,</i>	ibid.	<i>2.] The Charge of Innovation, answered from Reason,</i>	ibid.
<i>The Decemvirs,</i>	ibid.	<i>And from Precedents,</i>	219
<i>Cæsar,</i>	ibid.	<i>3.] That much Good may be taken away, answered,</i>	ibid.
<i>Justinian,</i>	215	<i>4.] Whether better to form a Text-Law, answered,</i>	ibid.
<i>The Sexviri of Athens,</i>	ibid.	<i>5.] That it will cause the Law to be learnt a-new,</i>	220
<i>King Edgar,</i>	ibid.	<i>Answered,</i>	ibid.
<i>Alphonso of Castile,</i>	ibid.	<i>How the Work is to be effected,</i>	ibid.
<i>Lewis XI. of France,</i>	ibid.	<i>Viz. By compiling a Book concerning the Antiquities of the Law,</i>	ibid.
<i>Henry VIII. of England,</i>	ibid.	<i>A Course of Law in the Order of Time,</i>	ibid.
<i>The Laws of England characterized,</i>	206	<i>Homonymiz to be left out,</i>	222
<i>Require Amendment,</i>	ibid.	<i>Antinomiz how to be treated,</i>	ibid.
<i>The Work recommended to King James, on Account of his Issue,</i>	ibid.	<i>Idle Queries to be avoided,</i>	ibid.
<i>And learned Times,</i>	ibid.	<i>Tedious Causes to be shortened,</i>	ibid.
<i>The Author's Proposal to assist therein,</i>	ibid.	<i>Reporters to be appointed,</i>	ibid.
<i>A View of the Thing proposed,</i>	217	<i>Auxiliary Books,</i>	ibid.
<i>Its Dignity,</i>	ibid.	<i>Institutions,</i>	ibid.
<i>Its Safety and Convenience,</i>	ibid.	<i>A Treatise of Maxims and Rules of Law,</i>	223
<i>Objections. 1.] That the Work is needless, answered,</i>	ibid.	<i>Law-Dictionary,</i>	ibid.
<i>The Law of England better than Foreign Laws,</i>	ibid.	<i>Abridgements,</i>	ibid.

C O N T E N T S.

	Page		Page
<i>The Statute-Law how to be re-compiled,</i>	ibid.	<i>The Penalties of some to be mitigated,</i>	223
<i>The Statutes concerning Cases diminished, to be discharged,</i>	222	<i>Concurrent Statutes to be reduced,</i>	ibid.
<i>The useless and ensnaring Ones to be repeated,</i>	ibid.	<i>The Whole to be a Parliamentary Act,</i>	ibid.

S U P P L E M E N T X V.

A History of the Nature, Use, and Proceedings of the Law of England.

S E C T. I.

The Procedure of the Law in Matter of the P E A C E.

<i>Use of the Law, wherein it consists,</i>	229	<i>Authority of Constables,</i>	ibid.
<i>Surety to keep the Peace,</i>	ibid.	<i>Origin of High-Constables,</i>	ibid.
<i>Action for Slander, Battery, &c.</i>	ibid.	<i>Office of the Court-Leet,</i>	ibid.
<i>Appeal of Murder given to the next of Kin,</i>	ibid.	<i>Jurisdiction of Court-Leets,</i>	132
<i>Manslaughter, when a Forfeiture of Goods, and when not,</i>	230	<i>Election of Constables,</i>	ibid.
<i>Felo de se,</i>	ibid.	<i>Are to act gratis,</i>	ibid.
<i>Felony by Mischance,</i>	ibid.	<i>Are punishable for Refusal,</i>	ibid.
<i>Punishment for Example,</i>	ibid.	<i>The Power of Constables,</i>	ibid.
<i>The Office of Constable of the Peace,</i>	ibid.	<i>In Matters of the Crown,</i>	233
<i>High-Constable for every Hundred, and a Petty-Constable for every Village,</i>	231	<i>In Matters of Nuisance and Grievance,</i>	ibid.
		<i>Constables how punishable,</i>	ibid.
		<i>The Oath of Constables,</i>	ibid.
		<i>The Authority of Constables,</i>	234
		<i>Deputy-Constables.</i>	ibid.
		<i>Summary of the Constable's Office,</i>	ibid.

S E C T.

CONTENTS.

S E C T. II.

The Office of Justices of the PEACE.

	Page		Page
<i>The King's Bench when first instituted, and its Jurisdiction,</i>	235	<i>Justices of the Peace ordained instead of Conservators,</i>	ibid.
<i>Court of Marshalsea, its Jurisdiction,</i>	ibid.	<i>Their Sessions and Office,</i>	ibid.
<i>Sheriff's Tourne instituted,</i>	ibid.	<i>Quarter-Sessions held by the Justices of the Peace,</i>	238
<i>Subdivision of the County-Court into Hundreds,</i>	ibid.	<i>The Authority of the Justices of the Peace out of Sessions,</i>	ibid.
<i>The Charge of the County committed to the Sheriff,</i>	236	<i>Judges of Assize in the Place of the ancient Judges in Eyre,</i>	239
<i>The Sheriff Judge of all County Courts,</i>	ibid.	<i>The Authority of the Judges in Eyre, translated to the Justices of Assize,</i>	ibid.
<i>County Courts kept Monthly,</i>	ibid.	<i>Justices of Assize lessened by the Court of Common-Pleas,</i>	ibid.
<i>The Office of the Sheriff,</i>	ibid.	<i>Their Commissions. Oyer and Terminer,</i>	ibid.
<i>Hundred Courts to whom first granted,</i>	ibid.	<i>Goal-Delivery,</i>	ibid.
<i>Lord of the Hundred to appoint two High-Constables,</i>	ibid.	<i>The Manner of proceeding therein,</i>	240
<i>What Matters are enquired of in the Leets and Law-Days,</i>	237	<i>Benefit of the Clergy,</i>	241
<i>Conservators of the Peace, at the King's Pleasure,</i>	ibid.	<i>Commission of Assizes,</i>	ibid.
<i>Their Office,</i>	ibid.	<i>Commission of Nisi Prius,</i>	ibid.
<i>Conservators of the Peace by Virtue of their Office,</i>	ibid.	<i>Commission of Peace,</i>	242

S E C T. III.

The Procedure of the LAW in Matter of PROPERTY.

<i>Property of Lands, how acquired,</i>	243	<i>Occupancy,</i>	244
<i>Property by Entry,</i>	ibid.	<i>Property of Lands by Descent,</i>	ibid.
<i>Land left by the Sea belongs to the King,</i>	ibid.	<i>Three Rules by Descent,</i>	ibid.
		<i>Customs of certain Places,</i>	245

Every

CONTENTS

	Page		Page
<i>Every Heir having Land is bound by the Binding Acts of his Ancestors,</i>	245	<i>Tenants by Knights Service,</i>	249
<i>Heirs charged for false Plea,</i>	246	<i>Soccage Tenure,</i>	ibid.
<i>Property of Lands by Escheat,</i>	ibid.	<i>Relief of Tenants in Socage,</i>	249
<i>The Causes of Escheat,</i>	ibid.	<i>Tenure by Copy,</i>	ibid.
<i>Attainder of Treason entitles the King,</i>	ibid.	<i>Court Baron,</i>	ibid.
<i>Knights Service instituted,</i>	ibid.	<i>What Attainders give the Escheat to the Lords,</i>	250
<i>Knights Service in Capite,</i>	247	<i>Outlawry,</i>	ibid.
<i>The Institution of Socage in Capite,</i>	248	<i>Prayer of the Clergy,</i>	ibid.
<i>Office of Alienation,</i>	ibid.	<i>Standing mute,</i>	ibid.
<i>Aid, what,</i>	ibid.	<i>Felo de le, and Flying,</i>	ibid.
<i>Tenants by Socage in Capite,</i>	ibid.	<i>Not Surrendring,</i>	ibid.
<i>Manners, how first created,</i>	ibid.	<i>Forfeiture of Lands to the Crown,</i>	251
		<i>For Treason,</i>	ibid.
		<i>Felony,</i>	ibid.

S E C T. IV.

OF PROPERTY OF LANDS by Conveyance.

<i>Estates how created by Lease-parole,</i>	252	<i>Perpetuity,</i>	ibid.
<i>Leases go to Executors, not Heirs,</i>	ibid.	<i>Fee-Simple,</i>	255
<i>How forfeited,</i>	ibid.	<i>The Difference betwixt Reversion and Remainder,</i>	ibid.
<i>Chattels real,</i>	ibid.	<i>Lands conveyed by Feoffment,</i>	ibid.
<i>Leases for Lives, and Freeholds,</i>	253	<i>Recovery,</i>	256
<i>How forfeited,</i>	ibid.	<i>Feoffments and Recoveries,</i>	257
<i>Entails,</i>	ibid.	<i>Use, what,</i>	ibid.
<i>Their Origin,</i>	ibid.	<i>Conveyance to stand seized to Use,</i>	ibid.
<i>Their Inconveniencies,</i>	ibid.	<i>Conveyance by Will in Writing,</i>	258
<i>Remedied by Statutes,</i>	254		

d

S E C T.

CONTENTS

SECT. V.

OF PROPERTY IN GOODS.

	Page		Page
Property by Gift,	260	Proving the Will,	ibid.
by Sale,	261	By Letter of Administration,	ibid.
by Theft, or taking in		The Granting of Administration,	263
Jeft,	ibid.	How Executors are to proceed,	ibid.
by Waving of Goods,	ibid.	How Administrators,	ibid.
by Straying,	262	Ordinary, what,	264
by Wreck,	ibid.	Property by Legacy,	ibid.
by Forfeitures,	262		
by Executorship,	ibid.		

SECT. VI.

Cases of Treason; with the Trial, Penalties, and Proceedings therein.

Cases of Treason,	265	Misprison of Treason,	ibid.
The Punishments and Proceedings		Petty-Treason,	ibid.
in Treason,	266	Punishment and Proceedings in	
Misprison of Treason,	267	Petty-Treason,	268
Punishment and Proceedings in			

SECT. VII.

Cases of Felony; with the Trial, Punishment and Proceedings therein.

Cases of Felony,	268	in Cases of Præmunire,	272
Punishment of Felony,	269	Cases of Abjuration and Exile, with	
Felony de se, with the Punishment		the Proceedings therein,	ibid.
and Proceedings,	271	Cases of Heresy, and the Proceed-	
Cases of Præmunire,	ibid.	ings therein.	273
The Punishment and Proceedings			

SECT.

CONTENTS

IVX T SEI TM VIII P U 2

The Prerogatives of the CROWN.

	Page		Page
The King's Prerogative in Parliament,	273	In Matters of Trade and Traffick,	274
In Matters of Peace and War, <i>ibid.</i>		In the Persons of his Subjects,	<i>ibid.</i>
In Matters of Money, <i>ibid.</i>			

S E C T. I X.

Of the Nature and Office of Grand Juries; particularly the JURY of the VERGE.

The Office of Grand Juries,	274	Cases of Treason,	<i>ibid.</i>
Particular Office of the Jury of the Verge,	275	Military Men,	<i>ibid.</i>
The Verge, what,	<i>ibid.</i>	Prophesies,	<i>ibid.</i>
How regulated anciently,	<i>ibid.</i>	Capital Offences relating to the People,	279
The Offences to be presented,	<i>ibid.</i>	Murder,	<i>ibid.</i>
Regard God and the Church,	276	Perjury-Treason,	<i>ibid.</i>
Profanation,	<i>ibid.</i>	Man-Slaughter,	<i>ibid.</i>
Contempts of the Church,	<i>ibid.</i>	Rapes, Double-Marriages, &c.	280
Divisions and Breach of Unity,	<i>ibid.</i>	Robberies,	<i>ibid.</i>
Perjury,	277	Offences against the People, that are not Capital,	<i>ibid.</i>
Conjurat[i]on and Witchcraft,	<i>ibid.</i>	Forfe,	<i>ibid.</i>
Offences against the State,	<i>ibid.</i>	Executions,	<i>ibid.</i>
against the King's Person,	<i>ibid.</i>	Frauds,	281
against Privy-Counsellors,	<i>ibid.</i>	Nuisances and Grievances,	<i>ibid.</i>
The King's Person represented three ways,	<i>ibid.</i>	Breach of Statutes,	<i>ibid.</i>
Treasons of three kinds,	278	Killing the King's Game,	<i>ibid.</i>
Invasion and Rebellion,	<i>ibid.</i>	Food,	<i>ibid.</i>
Alienation of Hearts,	<i>ibid.</i>	Manufactures,	<i>ibid.</i>

CONTENTS

SUPPLEMENT XVI

Characteristicks of a Believing Christian.

283

SUPPLEMENT XVII

An Attempt to promote the Peace of the Church. 289

SECTION

Of the Controversies of the CHURCH of England.

T HE Church always liable to	Page	The Occasion of Church Controversies,	ibid.
Controversies,	291	The Calumniating of Bishops,	ibid.
The Controversies of the Church of		The Regard paid them by the an-	
England not dangerous,	ibid.	cient Councils and Synods,	296
Require Rest rather than Remedy,		The Second Occasion of Church Con-	
	292	troversies,	ibid.
Concern not the great parts of Wor-		Emulation and Party nourished by	
ship,	ibid.	the Universities,	297
Peace best built upon a Recollection		The Abuse of Names,	ibid.
of Injuries,	293	A Third Occasion of Church Con-	
Religion treated in the Theatrical		troversies; viz. an extremes flying	
Manner,	ibid.	from Heresy or Corruption,	ibid.
Religious Disputes to be handled		The Danger of this Error,	298
with Gravity,	ibid.	A fourth Occasion, the Imitation	
The Blame where justly laid,	294	of foreign Churches,	ibid.
A Declaration required of the		Inconveniences in the Foreign	
Clergy,	ibid.	Churches,	299
Two kinds of Pamphlets,	ibid.	The Fruits of the foreign Churches,	ibid.
Violent Opposition to Episcopacy,	ibid.	The Growth and Progress of Con-	
The Cure of these Disturbances,	ibid.	troversies,	ibid.
Five Particulars blameable in re-		The Progress of the Side for Re-	
lation to Church Matters,	295	formation,	ibid.

Of

CONTENTS.

	Page		Page
<i>Of those on the Side of the Establishment,</i>	300	<i>Their erroneous and imperfect Manner of teaching the People,</i>	ibid.
<i>Each Party greatly differs from itself,</i>	ibid.	<i>Their Admission of the People to all Controversies,</i>	305
<i>The Error of the Separatists,</i>	ibid.	<i>Their manner of Handling the Scriptures,</i>	ibid.
<i>The Stiffness of the Bishops,</i>	301	<i>Their extreme Magnifying of Preaching,</i>	ibid.
<i>Uncharitable Procedure,</i>	ibid.	<i>Their Stiffness, and Fondness for their own Tenets,</i>	ibid.
<i>Of the Party in Power,</i>	302	<i>A Consideration of their Ways laid before them,</i>	ibid.
<i>Of the Party out of Power,</i>	303	<i>The way of conducting Religious Controversies,</i>	306
<i>The Procedure of the Separatists, or Opposers of Episcopal Government,</i>	ibid.	<i>The People no Judges of Controversies,</i>	ibid.
<i>Their Pretences to Zeal and Sincerity,</i>	ibid.	<i>Conclusion,</i>	ibid.
<i>Their Pretences to Light and Perfection,</i>	ibid.		
<i>Their Reproach of Preachers,</i>	304		
<i>Their own manner of Preaching,</i>	ib.		

S E C T. II.

Of the Regulation of the CHURCH of England.

<i>The Design,</i>	307	<i>Primitive Examples how to be followed,</i>	ibid.
<i>Two Objections to it,</i>	308	<i>The Government of Bishops to be continued,</i>	ibid.
<i>Whether good Policy allows of Reformation in Religion,</i>	ibid.	<i>The Exercise and Deputation of their Authority,</i>	311
<i>The Church of England compared with foreign Churches,</i>	ibid.	<i>Bishops acting alone not countenanced by parallel Instances,</i>	ibid.
<i>The best Time for Reformation,</i>	309	<i>Not so from the First,</i>	ibid.
<i>That Alteration for the Better is to be feared,</i>	ibid.	<i>Not so in the Bishops of Rome,</i>	312
<i>No Form of Church Discipline directed in Scripture,</i>	ibid.	<i>Whether Strength shou'd be added to the Convocation,</i>	ibid.
<i>Rites and Ceremonies left to Discretion,</i>	310		

Bishops

CONTENTS.

	Page		Page
<i>Bishops not to depute their Authority,</i>	312	<i>Prophecies to be restored, as an Exercise,</i>	318
<i>As Kings do,</i>	313	<i>With Additions,</i>	319
<i>Bishops able to discharge their Office in Person,</i>	ibid.	<i>Examination of Ministers before Ordination,</i>	ibid.
<i>The Oath that obliges Men to accuse themselves,</i>	314	<i>How a Sufficiency of Pastors is procurable,</i>	ibid.
<i>Prayer to be revered,</i>	315	<i>The Abuse of Excommunication,</i>	ibid.
<i>As well as Preaching,</i>	ibid.	<i>Its Rectification,</i>	320
<i>The proper Form of Prayer,</i>	ibid.	<i>By Permutation,</i>	ibid.
<i>Exceptions to the Liturgy,</i>	ibid.	<i>Non-Residents, and Pluralities,</i>	ibid.
<i>Absolution,</i>	ibid.	<i>Study,</i>	321
<i>Confirmation,</i>	ibid.	<i>Extraordinary Service of the Church,</i>	ibid.
<i>Baptism,</i>	ibid.	<i>Pluralities,</i>	ibid.
<i>Matrimony,</i>	317	<i>The Provision for the Maintenance of the Church,</i>	ibid.
<i>Church Musick,</i>	ibid.	<i>Commendams,</i>	322
<i>The Cap and Surplice,</i>	ibid.	<i>Impropriations,</i>	ibid.
<i>Subscription,</i>	ibid.		
<i>The Case of a Preaching Ministry,</i>	ibid.		

INSTAURATION, PART II.

OR,

A New Machine for Rebuilding the Sciences.

PRELIMINARIES.

<i>Aphorisms for a just Interpretation of Nature,</i>	333	<i>Interferes not with the Ancients,</i>	338
<i>Introduction,</i>	337	<i>Philosophers reduced to two Tribes,</i>	339
<i>The State of the Ancient Philosophies,</i>	ibid.	<i>Requisites to judging of the Work,</i>	ibid.
<i>The Design of the Work,</i>	ibid.		

PART

CONTENTS.

PART I.

SECT. I.

General Aphorisms for Interpreting Nature, and Extending the Empire
of Man over the Creation.

	Page		Page
<i>MAN's Power, how limited,</i>	343	<i>The common Axioms, how form'd,</i>	ibid.
<i>Man requires Instruments,</i>	ibid.	<i>The Anticipation and Interpretation of Nature, what,</i>	ibid.
<i>Power and Knowledge co-incide,</i>	344	<i>The Force of Anticipation,</i>	ibid.
<i>Arts and Sciences imperfect,</i>	ibid.	<i>The proper Use of Anticipation and Logick,</i>	349
<i>Logic,</i>	345	<i>Anticipation of no Service in the Sciences,</i>	ibid.
<i>Syllogism,</i>	ibid.	<i>The Sciences not greatly advanced by engrafting new Inventions on old,</i>	ibid.
<i>Notions not safely trusted,</i>	346	<i>The present Undertaking not to be judged of by Anticipation,</i>	ibid.
<i>Two Ways of discovering Truth,</i>	347	<i>Confutations, where of no Service,</i>	350
<i>The Action of the unassisted Understanding,</i>	ibid.	<i>The Course observed by the Author,</i>	ibid.
<i>Its Action in a sober Genius,</i>	ibid.		
<i>The Difference of the two Ways of discovering Truth,</i>	ibid.		
<i>False Images of the Mind,</i>	348		
<i>Axioms raised by Arguments, useless in Works,</i>	ibid.		

SECT. II.

Of the false Images, or Idols of the Mind.

<i>Idols, what,</i>	351	<i>Idols of the Theatre, what,</i>	ibid.
<i>Their Kinds,</i>	ibid.	<i>The particular Idols of the Tribe,</i>	ibid.
<i>Idols of the Tribe, what,</i>	ibid.	<i>viz. (1.) From imaginary Relations,</i>	353
<i>Idols of the Den, what,</i>	352	<i>(2.) From Distortions,</i>	ibid.
<i>Idols of the Market, what,</i>	ibid.	<i>(3.) Undue</i>	

CONTENTS.

	Page		Page
(3.) <i>Undue Motions of the Under-</i>		(3.) <i>Affectation of Antiquity, or</i>	
<i>standing,</i>	354	<i>Novelty,</i>	357
(4.) <i>Restless Appetite,</i>	ibid.	<i>And (4.) ill Choice of Objects,</i>	ibid.
(5.) <i>Impure Light of the Under-</i>		<i>The Rise of the Idols of the Den,</i>	
<i>standing,</i>	ibid.		ibid.
(6.) <i>Defects in the Senses,</i>	355	<i>Idols of the Market, from Words,</i>	
(7.) <i>And Fondness for Abstractions,</i>	ibid.		358
<i>The particular Idols of the Den,</i>		<i>Are of Two Kinds; viz. Names of</i>	
	356	<i>Things not existing,</i>	ibid.
(1.) <i>From Affection to particular</i>		<i>And Words wrong form'd from</i>	
<i>Studies,</i>	ibid.	<i>Things,</i>	ibid.
(2.) <i>The principal Difference of</i>		<i>Depravities in Words,</i>	359
<i>Capacities,</i>	ibid.	<i>Idols of the Theatre palm'd upon</i>	
		<i>the Mind,</i>	ibid.

S E C T. III.

Of the different Philosophical THEORIES.

<i>Theories whence, and how suppress-</i>		(3.) <i>Not Keeping a Mean in Na-</i>	
<i>sed,</i>	360	<i>ture,</i>	ibid.
<i>The Origin of Errors,</i>	361	<i>And (4.) From Excesses in point of</i>	
<i>Among the Rational Philosophers;</i>		<i>Assent,</i>	ibid.
<i>viz. Aristotle, &c.</i>	ibid.	<i>These Excesses of two Kinds,</i>	ibid.
<i>The Empirical Philosophy,</i>	362	<i>Instanced in Aristotle,</i>	366
<i>And the superstitious,</i>	363	<i>Plato,</i>	ibid.
<i>Exemplified in Pythagoras and</i>		<i>Pyrrho,</i>	ibid.
<i>Plato,</i>	ibid.	<i>All Idols to be renounced,</i>	ibid.
<i>The corrupt Matter of Contempla-</i>		<i>False Demonstrations countenance</i>	
<i>tion,</i>	ibid.	<i>the Idols of the Mind,</i>	ibid.
(1.) <i>From Errors in the mechanic</i>		<i>The best Demonstrations are from</i>	
<i>Arts and Nature,</i>	364	<i>Experience,</i>	367
(2.) <i>From Logical Notions in Phy-</i>		<i>The Errors of leaving Experiments</i>	
<i>sics,</i>	ibid.	<i>too soon,</i>	368
<i>How Physical Notions differ from</i>		<i>The common Experience a false</i>	
<i>Metaphysical,</i>	365	<i>Demonstration,</i>	ibid.

S E C T.

CONTENTS

SECT. IV.

Of the Signs, or Characteristicks, of false PHILOSOPHIES.

	Page		Page
(1.) <i>The Grecian Philosophy faulty in its Origin, and deceitful,</i>	369	<i>The Chemists a few, but casually,</i>	ibid.
<i>The Greeks Masters of but little Knowledge,</i>	370	(3.) <i>The Signs from the Progress of Philosophies,</i>	372
(2.) <i>The best Signs of Philosophies, from their Fruits,</i>	371	(4.) <i>The Confession of Authors, The Dissentions of Professors,</i>	373
<i>The Greek Philosophy has yielded none,</i>	ibid.	(5.) <i>The Argument of general Consent fallacious,</i>	ibid.

SECT. V.

Of the Causes of Errors in PHILOSOPHIES.

<i>The Causes why all the former Philosophers have erred,</i>	375	<i>The vulgar Notion of Antiquity erroneous,</i>	ibid.
Viz. (1.) <i>Want of Times suited to Learning,</i>	ibid.	<i>The Voyages of the Moderns,</i>	ibid.
(2.) <i>Little Labour bestow'd upon natural Philosophy,</i>	376	<i>The Weakness of admiring Authors,</i>	381
<i>The Times, at best, unfavourable to natural Philosophy,</i>	ibid.	(8.) <i>Admiration of the Works in Use,</i>	ibid.
(3.) <i>Few entirely addicted to natural Philosophy,</i>	377	<i>But few Inventions discovered in proportion to the Time,</i>	ibid.
(4.) <i>The End of the Sciences wrong fixed,</i>	ibid.	<i>Little Variety of Matter in Books,</i>	382
(5.) <i>A wrong Way chose,</i>	378	<i>The Procedure of the Alchemists,</i>	ibid.
<i>The Logical Way,</i>	ibid.	<i>The Procedure of the Followers of natural Magic,</i>	ibid.
<i>Experience to be followed,</i>	379	<i>Superstitious Magic,</i>	383
<i>And a due Order to be observed,</i>	ibid.	(9.) <i>The Artifice of Teachers, and Writers, in the Sciences,</i>	ibid.
(6.) <i>The Neglect of Experiments,</i>	ibid.	<i>The aphoristical Way of Writing recommended,</i>	ibid.
(7.) <i>Regard to Antiquity and Authority,</i>	380		

CONTENTS.

	Page		Page
(10.) Ostentatious Promises of the Moderns,	384	count of the School Theology,	ibid.
(11.) Want of proposing worthy Tasks,	385	The mixture of Philosophy with Religion,	387
Laying the Imperfection of Arts to the Charge of Nature,	ibid.	The Opinion that deep natural Enquiries should subvert Religion,	ibid.
Secrets in some Things, lie open in others,	386	(13.) Schools and Academies proving unfavourable to Philosophy,	388
Slender Performances over-rated,	ibid.	(14.) Want of Rewards,	ibid.
(12.) Superstition and Zeal being opposite to natural Philosophy,	ibid.	(15.) Despair, and the supposition of Impossibility,	389
Dangerous to philosophize, on ac-		Transition,	ibid.

SECTION VI.

Of the Grounds of Hope, for the farther Advancement of PHILOSOPHY and the SCIENCES.

The greatest Motive of Hope, to be found in the fourth Part of the Instauration,	390	A want of informing Experiments,	394
The goodness of the Design, a Motive of Hope for improving Philosophy,	391	A better Order in Experimenting,	ibid.
The Errors of the Ancients to be removed, and new Ways to be tried,	391	Inventions to be wrote down,	395
The rational and experimental Faculties to be united,	392	Historical Materials to be tabled,	ibid.
Natural Philosophy to be pure,	ibid.	Axioms to be formed from Experiments,	ibid.
The Mind to be purged,	ibid.	Axioms to be formed in a new Manner,	396
Wrong Ideas to be discharged,	393	The Understanding to be kept steady,	397
The Author compared to Alexander,	ibid.	A new Form of Induction,	ibid.
A just Foundation not hitherto laid for Experience,	ibid.	The Caution required in forming Axioms by its means,	ibid.
		Philosophy to be extended to the Sciences, and they brought back to Philosophy,	398

Discoveries

CONTENTS.

	Page		Page
<i>Discoveries may be expected from diligent Enquiry,</i>	398	<i>No great Time and Treasure bestowed upon Philosophy,</i>	ibid.
<i>Many unexpected Discoveries made,</i>	ibid.	<i>Experience but little prosecuted,</i>	ibid.
<i>Ordnance,</i>	399	<i>The Author's Example proposed,</i>	402
<i>The Compass, &c.</i>	ibid.	<i>Experiments to be gone upon,</i>	ibid.
<i>All afford an Argument of Hope,</i>	400	<i>Recapitulation,</i>	408
<i>The obvious Invention of Printing long unknown,</i>	ibid.	<i>The three Confutations used,</i>	ibid.
<i>The perverse Action of the Mind in Invention,</i>	401	<i>The Mind previously to be informed of the second Part,</i>	ibid.

S E C T. VII.

An Idea of the New Method of interpreting NATURE.

<i>The Author proposes to found no Sect,</i>	404	<i>The Reason of the Author's differing from others,</i>	ibid.
<i>Nor regards Opinions,</i>	ibid.	<i>The Objection, that the present Design draws away from the Abstract Contemplation of Truth,</i>	411
<i>Promises no Works,</i>	405	<i>Answered,</i>	ibid.
<i>The Natural History hitherto collected, unfit for the Purpose,</i>	ibid.	<i>That after all, some former Philosophies may be fallen upon,</i>	412
<i>No Delay made in the Discovery of Works,</i>	ibid.	<i>Answered,</i>	ibid.
<i>Supposing false Facts in a Natural History,</i>	406	<i>The Charge of Scepticism,</i>	413
<i>Trite and vulgar Particulars,</i>	ibid.	<i>Answered,</i>	ibid.
<i>Such as are disagreeable,</i>	407	<i>That the present Design regards the whole of Philosophy,</i>	ibid.
<i>Too curious or subtle,</i>	408	<i>The Design not to abolish the present Arts and Sciences,</i>	414
<i>The Objection of discarding the Ancients, and all the Sciences,</i>	409	<i>The Excellence of the End in View,</i>	415
<i>Answered, as to rejecting Antiquity,</i>	ibid.	<i>The Honour of Inventors,</i>	416
<i>All Authors, and the Sciences,</i>	410	<i>The Efficacy of Inventions,</i>	ibid.
<i>The Accusation of Insolence answered,</i>	ibid.	<i>Three Kinds of Ambition,</i>	ibid.

CONTENTS.

	Page		Page
<i>The great Advantage of the present Design,</i>	417	<i>The Art of interpreting Nature, no Stranger to the Mind,</i>	418
<i>That Arts and Sciences may be misemployed,</i>	ibid.	<i>The Art of Invention to increase with Inventions,</i>	ibid.
<i>Answered,</i>	ibid.		

PART II.

SECT. I.

Particular APHORISMS for interpreting Nature: Or, the Means of enlarging the Human POWER and KNOWLEDGE, by the Discovery of FORMS.

THE Office of the human Power, and Knowledge, 423 Causes of four Kinds, 424 Forms, what, ibid. The Knowledge of Forms leads to great Discoveries, ibid. Practice to govern Theory, 425 The Properties of a good Rule for Practice, 426 The Precept for a perfect Rule of Practice, ibid. The Precept for a true and perfect Theoretical Axiom, ibid. Axiom for the Transformation of Bodies, 427 Second Axiom for Transmutation, ibid. Regards Motions as well as Generations, 428 The Practice answering to the Theory, ibid. Latent Process, what, ibid.	Contains numerous Particulars, ibid. Unregarded in the Sciences, 429 The concealed Structure unknown, ibid. And difficult to come at, ibid. Induction to be used, instead of Fire, in the Analysis of Bodies, 430 The Spirit and tangible Parts of Bodies to be enquired after, ibid. Objections to the Business in hand answered, ibid. Philosophy divided, with regard to primary and secondary Axioms, 431 The Indication for interpreting Nature, ibid. viz. A History of Nature, 432 Tables of Instances, ibid. Genuine Induction, ibid. The Procedure of the Enquiry of Forms, ibid.
--	---

CONTENTS.

The true Method of Discovering Forms, illustrated by
an Example in the Form of Heat.

TABLE I.

Instances agreeing in the Nature of H E A T.

	Page		Page
<i>Affirmative Instances of Heat,</i>		<i>Animals,</i>	434
	433	<i>Excrements,</i>	ibid.
<i>Celestial,</i>	ibid.	<i>Chemical Preparations,</i>	ibid.
<i>Subterraneous,</i>	ibid.	<i>Aromatics,</i>	ibid.
<i>Common and extraordinary,</i>	ibid.	<i>Acids,</i>	ibid.
<i>By Attrition or Percussion,</i>	434	<i>Cold,</i>	435
<i>Putrefaction,</i>	ibid.	<i>The Method of forming the second</i>	
<i>Solution,</i>	ibid.	<i>Table,</i>	ibid.

TABLE II.

Instances of Approximation, yet wanting the Nature of Heat.

<i>Negative Instances of Heat,</i>	435	<i>Attrition gives Heat,</i>	442
<i>The Celestial Kind,</i>	436	<i>Herbs heating,</i>	443
<i>The burning Glass,</i>	437	<i>Quicklime slaked,</i>	ibid.
<i>Comets and Meteors,</i>	438	<i>Metals in Solution,</i>	ibid.
<i>Corruscations,</i>	ibid.	<i>Heat of Animals,</i>	444
<i>Flame,</i>	439	<i>Heat of Excrements,</i>	ibid.
<i>Ignition,</i>	ibid.	<i>Heat of Menstruums,</i>	ibid.
<i>Hot Springs,</i>	440	<i>Spirit of Wine,</i>	445
<i>Hot Liquors,</i>	ibid.	<i>Aromatics,</i>	ibid.
<i>Hot Vapours,</i>	ibid.	<i>Cold Things,</i>	ibid.
<i>Hot Air,</i>	ibid.	<i>Some Actions common to Heat and</i>	
<i>Hot Seasons,</i>	ibid.	<i>Cold,</i>	ibid.
<i>Subterraneous Air,</i>	441	<i>A third Table to be formed,</i>	446
<i>Warmth of Wool, &c.</i>	ibid.	<i>The comparative Degrees of Heat,</i>	
<i>All Bodies heatable,</i>	442		ibid.
<i>Flint and Steel,</i>	ibid.		

TABLE

CONTENTS

TABLE III

A Table of the Degrees of Heat

	Page		Page
No Matter hot in itself,	446	Fire extinguished by strong Com-	
Potential Heats,	447	pression,	452
Putrefaction attended with a la-		Heat increased by Approach,	ibid.
tent Heat,	448	By Union,	ibid.
The first Degree of Heat, that of		By Continuance,	ibid.
Animals,	ibid.	By Cold,	ibid.
Different Heats of Animals,	ibid.	The Degrees of Reception of Heat,	
And different Parts of the same			ibid.
Animal,	449	In Air,	ibid.
The Heat of the celestial Bodies,	ibid.	Weather-Glasses, how made,	ibid.
How increased,	450	The Scale of Bodies most suscep-	
A Difference, in Degree, betwixt		ble of Heat and Cold,	453
the Milder Heats,	ibid.	Heat averse to tangible Bodies,	ibid.
The Degrees of Heat indicated,	ibid.	Natural History defective,	454
Metallic Flames,	ibid.	Use of the preceding Tables,	ibid.
Lightning,	451	Forms known intuitively to sub-	
The Degrees of Heat in ignited		lime Intelligences,	ibid.
Bodies,	ibid.	The Business of Genuine Inducti-	
Ignited Bodies compared with		on,	ibid.
Flames,	ibid.	The Notion of Forms limited,	455
Heat increased by Motion,	ibid.	These Forms simple,	ibid.
Conflagrations strongest against the		Not ideal,	ibid.
Wind,	ibid.	Nor too abstracted,	456
Strong Flame requires a Cavity		The Exclusion, or Rejection, of Na-	
and Confinement,	ibid.	tures not belonging to the Form	
Iron heated by the Hammer,	ibid.	of Heat,	ibid.

TABLE

CONTENTS.

TABLE IV.

An Example of the Exclusion, or Rejection of Natures, from the Form of Heat. 457

	Page		Page
Exclusion leads to Induction,	458	Heating not of the Form of Heat,	ibid.
Premission to the Understanding, or the first Vintage of Enquiry,	459	The first Difference of Motion in the Form of Heat,	461
The Form found more eminently in some Instances, than in others,	ibid.	The Second Difference,	462
Motion the Form of Heat,	ibid.	The third Difference,	463
Or its Genus,	460	The fourth Difference,	464
Heat relative to Man,	ibid.	The Theoretical Fruit,	464
		The Practical Fruit,	ibid.

SECT. II.

The Doctrine of Instances; or the Method of Expediting the Interpretation of Nature, and the Investigation of Forms, by Prerogative Instances.

Transition to the Doctrine of Instances,	467	Their Degrees to be observed,	471
The Division of the remaining Parts of the Novum Organum,	468	(3.) Glaring Instances,	ibid.
(1.) Solitary Instances, what,	ibid.	Their Use,	ibid.
Their Use,	ibid.	Exemplified in the Subject Heat,	ibid.
Exemplified in the Subject of Colours,	ibid.	And Gravity,	472
(2.) Travelling Instances,	469	(4.) Clandestine Instances,	ibid.
Their Use,	ibid.	Exemplified in Consistence or Solidity,	ibid.
Lead to Practice,	ibid.	In Drops of Water,	ibid.
Exemplified in the Subject of Transparency and Whiteness,	470	Drops of Metal,	473
The Caution required in them,	ibid.	Tenacious Fluids,	ibid.
		Soapy Water,	ibid.
		Frost and Snow,	ibid.

Again.

CONTENTS.

	Page		Page
<i>Again exemplified in the Subject of Attraction,</i>	ibid.	<i>The Manner of Compiling a Natural History intimated,</i>	ibid.
<i>In the Loadstone,</i>	ibid.	<i>Conformable Instances in the Configuration of the World,</i>	480
<i>In Wood-Arrows discharged from a Gun,</i>	ibid.	<i>In Cold and Heat,</i>	ibid.
<i>In Air and Water,</i>	474	<i>In Axioms,</i>	ibid.
<i>Most observable in the small Parts of Bodies,</i>	ibid.	<i>(7.) Heteroclite Instances, Their Use,</i>	ibid.
<i>(5.) Constituent Instances, what,</i>	ibid.	<i>Exemplified,</i>	481
<i>The Caution they require,</i>	ibid.	<i>A Collection to be made of them,</i>	ibid.
<i>Exemplified in the Subject of Artificial Memory,</i>	ibid.	<i>(8.) Deviating Instances, Differ from Heteroclite Instances,</i>	ibid.
<i>By Order, Place and Verse,</i>	475	<i>Conduce more directly to Practice,</i>	ibid.
<i>Striking the Sense,</i>	ibid.	<i>Require no Examples,</i>	482
<i>Moving the Passions,</i>	ibid.	<i>But a Collective History,</i>	ibid.
<i>When the Mind is unoccupied,</i>	ibid.	<i>(9.) Frontier Instances, Their Use,</i>	ibid.
<i>Holds for the Mind,</i>	ibid.	<i>Exemplified,</i>	ibid.
<i>Things expected,</i>	ibid.	<i>(10.) Instances of Power, Their Use,</i>	483
<i>Lesser Forms of Helps for the Memory,</i>	476	<i>The Caution they require,</i>	ibid.
<i>Exemplified in the Subject of Taste,</i>	ibid.	<i>A History to be made of them,</i>	484
<i>And the Communication of Qualities, without a Communication of Substance,</i>	ibid.	<i>The Singularities of Art to be Collected,</i>	ibid.
<i>The Use of this Kind of Instance,</i>	ibid.	<i>These Singularities exemplified, in Paper,</i>	485
<i>(6.) Parallel, or Conformable, Instances,</i>	477	<i>Matters of Dexterity,</i>	ibid.
<i>Exemplified in Reflections,</i>	ibid.	<i>Magical and superstitious Matters,</i>	ibid.
<i>The Axioms they may lead to,</i>	ibid.	<i>Use of the History,</i>	486
<i>Exemplified in Plants,</i>	478	<i>(11.) Friendly and Hostile Instances, The Use of Friendly Instances,</i>	ibid.
<i>Gums and Gems,</i>	ibid.	<i>Exemplified in the Subject of Flame,</i>	487
<i>The Scortum and Matrix,</i>	ibid.	<i>And Consistency,</i>	ibid.
<i>The moving Limbs of Animals,</i>	ibid.		
<i>Teeth and Beaks,</i>	479		
<i>Men and Plants,</i>	ibid.		

CONTENTS.

	Page		Page
<i>Admonitions relating to them,</i>	487	<i>May happen three Ways,</i>	494
(12.) <i>Subjunctive Instances,</i>	488	<i>The Way of Attraction chose for</i>	
<i>Their Use,</i>	ibid.	<i>an Example,</i>	495
<i>Exemplified,</i>	ibid.	<i>The Crucial Instance in this Case,</i>	ibid.
(13.) <i>Instances of Alliance,</i>	ibid.	<i>The apparent diurnal Motion of</i>	
<i>Their Use,</i>	ibid.	<i>the Heavens,</i>	496
<i>Exemplified in Heat,</i>	489	<i>A Crucial Instance therein,</i>	ibid.
<i>Lead to Differences,</i>	ibid.	<i>The Copernican Motion of the</i>	
<i>Four Differences in Heat,</i>	ibid.	<i>Heavens and Earth, whether</i>	
<i>Instances of Alliance exemplified</i>		<i>real or fictitious,</i>	ibid.
<i>in Vivification by Heat,</i>	490	<i>A Crucial Instance in the Case,</i>	497
<i>Exemplified in Motion and Rest,</i>	ibid.	<i>The Cause of Gravity,</i>	ibid.
<i>The regular Motion of the Comets,</i>	ibid.	<i>A Crucial Instance therein,</i>	ibid.
<i>The Motion of the Air,</i>	491	<i>The Verticity of the Needle,</i>	ibid.
<i>Exemplified in the Tides of the</i>		<i>A Crucial Instance in the Case,</i>	498
<i>Sea,</i>	ibid.	<i>The Substance of the Moon the</i>	
<i>In the Ascent of light Bodies,</i>	ibid.	<i>Question,</i>	ibid.
<i>In Gravity,</i>	ibid.	<i>The Crucial Instances therein,</i>	ibid.
<i>Its Cause where,</i>	ibid.	<i>The Motion of Projectiles,</i>	499
<i>Exemplified by an Instance of Ap-</i>		<i>The Cross-Way thereof,</i>	ibid.
<i>proach in Water-Spouts,</i>	492	<i>A Crucial Instance in the Case,</i>	ibid.
<i>In the reasoning Faculty,</i>	ibid.	<i>The Expansion of Gunpowder in-</i>	
<i>In Vision,</i>	ibid.	<i>to Flame,</i>	500
(14.) <i>Crucial Instances,</i>	493	<i>The Cross-Road,</i>	ibid.
<i>Their Nature,</i>	ibid.	<i>The Crucial Instances in the Case</i>	
<i>Their Use and Excellence,</i>	ibid.	<i>of two Kinds,</i>	ibid.
<i>Exemplified in the Tides of the</i>		<i>The First,</i>	501
<i>Sea,</i>	ibid.	<i>The Second,</i>	ibid.
<i>The Motion of the Tides referred</i>		<i>The transitory Nature of Flame,</i>	
<i>to two Kinds,</i>	ibid.		ibid.
<i>To determine which of the two is</i>		<i>The Cross-Road,</i>	ibid.
<i>the Fact,</i>	ibid.	<i>A Crucial Instance in the Case,</i>	ibid.
<i>The crucial Instances in this Case,</i>	494	<i>A Second Crucial Instance,</i>	502
<i>Supposing the Earth to revolve,</i>	ibid.	<i>These Crucial Instances why so</i>	
<i>The Crucial Instance in the rising</i>		<i>largely dwelt upon,</i>	ibid.
<i>Motion of the Sea,</i>	ibid.	(15.) <i>Instances of Divorce,</i>	ibid.
		<i>Their Use,</i>	ibid.
		f	Exem.

CONTENTS.

	Page		Page
<i>Exemplified in Heat, Light, Rarity and Mobility,</i>	503	<i>The Formation of Organical Bodies,</i>	508
<i>In the corporeal Nature, and natural Action,</i>	ibid.	<i>How brought down to Sense,</i>	ibid.
<i>Magnetical Action, an Instance of Divorce,</i>	ibid.	<i>Three different Kinds of Spirits in Bodies, found by Reduction,</i>	ibid.
<i>A Corollary from it,</i>	ibid.	<i>The more subtile Textures made sensible by Reduction,</i>	509
<i>(16.) Instances of Light,</i>	504	<i>The Density and Rarity of Bodies,</i>	ibid.
<i>Ranged into five Orders,</i>	ibid.	<i>That the different specific Gravities of Bodies are determinable,</i>	ibid.
<i>Instances of Entrance,</i>	ibid.	<i>The Density of Matter made sensible by Weight,</i>	510
<i>Of three Kinds for the Sight,</i>	ibid.	<i>A Table of the specific Gravities of Bodies,</i>	ibid.
<i>viz. (1.) Microscopes,</i>	ibid.	<i>Its Use,</i>	ibid.
<i>The Error to which they have given Occasion,</i>	505	<i>An Attempt to discover the Proportion betwixt tangible and intangible Bodies,</i>	ibid.
<i>Inconvenience of the Contrivance,</i>	ibid.	<i>Imperceptible Heat, or Cold, brought to the Senses by the Thermometer,</i>	511
<i>(2.) Telescopes,</i>	ibid.	<i>The Mixtures of Bodies, or the Properties of their different Parts,</i>	ibid.
<i>The Discoveries made by their Means,</i>	ibid.	<i>The erroneous Procedure of the Chemists therein,</i>	ibid.
<i>(3.) Instruments of Sight and Mensuration,</i>	506	<i>Alterations caused by the Fire,</i>	ibid.
<i>(17.) Summoning Instances,</i>	ibid.	<i>Adulterations in Bodies to be sought,</i>	512
<i>Cause Things to appear,</i>	ibid.	<i>The Motion of Bodies being either too swift or too slow,</i>	ibid.
<i>The Ways wherein Things escape the Senses,</i>	ibid.	<i>How reduced to the Senses,</i>	ibid.
<i>Substitution to be used in the first Way,</i>	ibid.	<i>How Reduction is made where the Object is too powerful,</i>	ibid.
<i>Reduction in the Second,</i>	507		
<i>The Reductions required in the Third and Fourth,</i>	ibid.		
<i>Exemplified in the Action of the Spirit of Bodies,</i>	ibid.		
<i>This Action described,</i>	ibid.		
<i>How made sensible,</i>	ibid.		
<i>By the Rusting of Metals,</i>	ibid.		
<i>The Shrinking of Bodies,</i>	508		
<i>Whence the different Effects of Heat,</i>	ibid.		

CONTENTS.

	Page		Page
<i>Where the Sense is full charged,</i>	512	<i>Some at very great ones,</i>	519
<i>Reduction sometimes made to the</i>		<i>Instanced in Flame, Heat and Cold,</i>	ibid.
<i>Sense of other Animals,</i>	ibid.	<i>In Odours, Sounds, and Light,</i>	ib.
(18.) <i>Journing Instances,</i>	513	<i>All Virtues limited,</i>	ibid.
<i>Strangely passed over,</i>	ibid.	<i>Some act at a Distance, and not by</i>	
<i>Exemplified in Vegetation,</i>	ibid.	<i>Contact,</i>	520
<i>In the hatching of Eggs, &c.</i>	514	<i>Exemplified in Vision,</i>	ibid.
<i>In the relaxing, or opening, of</i>		<i>The Motion of Expansion to be</i>	
<i>inanimate Bodies,</i>	ibid.	<i>measured,</i>	ibid.
(19.) <i>Supplemental Instances, or In-</i>		<i>Exemplified in a blown Bladder,</i>	ib.
<i>stances of Substitution,</i>	ibid.	<i>In Air under Water,</i>	ibid.
<i>Viz. (1.) By Approximation,</i>	ibid.	<i>The Rarification of the Air,</i>	521
<i>Exemplified in the Load-Stone,</i>		<i>Tangible Bodies hard to compress,</i>	
	515		ibid.
<i>And in Heat,</i>	ibid.	<i>Water compressed,</i>	ibid.
<i>And (2.) By Analogy,</i>	ibid.	<i>Solids harder to compress,</i>	521
<i>Exemplified in the Mixture of</i>		<i>Calculations, or Estimations, to be</i>	
<i>Spirits,</i>	ibid.	<i>made of every Kind,</i>	ibid.
<i>In the Composition of untangible</i>		(22.) <i>Instances of the Course,</i>	522
<i>Bodies,</i>	ibid.	<i>Their Office,</i>	ibid.
<i>Supplemental Instances, wherein</i>		<i>Actions performed in different</i>	
<i>useful when the proper ones</i>		<i>Times,</i>	ibid.
<i>may be had,</i>	516	<i>Exemplified in many Particulars,</i>	
(20.) <i>Lancing Instances, their Use,</i>			ibid.
	ibid.	<i>In Sound,</i>	ibid.
<i>Exemplified in great Variety,</i>	ibid.	<i>And Vision,</i>	ibid.
<i>Introduction to Practice,</i>	517	<i>The Motion of Light from the</i>	
<i>Practical Instances, what,</i>	ibid.	<i>fixed Stars,</i>	523
<i>Mathematical Instances,</i>	518	<i>Is extremely swift,</i>	ibid.
<i>Practice how rendered burden-</i>		<i>The Measures of Motions and Acti-</i>	
<i>some,</i>	ibid.	<i>ons to be found comparatively,</i>	
<i>Propitious Instances,</i>	ibid.		ibid.
(21.) <i>Instances of the Staff,</i>	ibid.	<i>Motions that differ comparatively,</i>	
<i>Virtues have their Sphere of Acti-</i>			ibid.
<i>vity,</i>	ibid.	<i>Whence Galilzo accounted for the</i>	
<i>Some operate at a Distance,</i>	ibid.	<i>Tides,</i>	524
<i>Some operate only in Contact,</i>	ib.	<i>The Use of the comparative Mea-</i>	
<i>Others operate at a small Di-</i>		<i>asures of Motions, exemplified in</i>	
<i>stance,</i>	519	<i>Powder-Mines,</i>	ibid.
		f 2	This

CONTENTS.

	Page		Page
<i>This the Foundation of magical</i>	524	<i>Is languid,</i>	530
<i>Instances,</i>	524	<i>(8.) The Motion of the lesser Con-</i>	ibid.
<i>The Case to be regarded in all na-</i>	ibid.	<i>gregation,</i>	ibid.
<i>tural Actions,</i>	ibid.	<i>Differs from the Motion of Want,</i>	ibid.
<i>(23.) Instances of Quantity, or Doses</i>	525	<i>Subdued three Ways; viz. first, by</i>	ibid.
<i>of Nature,</i>	525	<i>Inactivity,</i>	531
<i>Exemplified in various Particu-</i>	ibid.	<i>Which is set free (1.) by Heat,</i>	ibid.
<i>lars,</i>	ibid.	<i>(2.) By the Virtue of a Body re-</i>	ibid.
<i>Smallness of Quantity has some-</i>	ibid.	<i>lated,</i>	ibid.
<i>times the greater Effect,</i>	ibid.	<i>(3.) And by brisk Motion,</i>	ibid.
<i>The Measures of the Virtues in</i>	ibid.	<i>The Motion of the lesser Congrega-</i>	ibid.
<i>each Body to be particularly</i>	ibid.	<i>tion subdued, Secondly, by a pre-</i>	ibid.
<i>sought,</i>	ibid.	<i>dominating Body,</i>	ibid.
<i>The Doses of Nature to be sub-</i>	526	<i>And, Thirdly, by external Motion,</i>	532
<i>joined in every Enquiry,</i>	526	<i>Exemplified,</i>	ibid.
<i>(24.) Instances of Reluctance,</i>	ibid.	<i>In the Contraction of dry Bodies,</i>	ibid.
<i>Belong to all the Species of Motion,</i>	ibid.	<i>Motions meeting at a Distance,</i>	ibid.
<i>Motions divided and distinguished</i>	ibid.	<i>Four distinct Motions of the Load-</i>	ibid.
<i>into (1.) the Motion of Resistance,</i>	ibid.	<i>stone,</i>	ibid.
<i>(2.) The Motion of Connection,</i>	ibid.	<i>The Attraction betwixt Quick-</i>	533
<i>(3.) The Motion of Liberty,</i>	ibid.	<i>silver and Gold,</i>	533
<i>Its Phenomena in Tension,</i>	527	<i>(9.) Magnetical Motion, or the Mo-</i>	ibid.
<i>This Motion to be well distinguish-</i>	ibid.	<i>tion of Attraction, in large Bo-</i>	ibid.
<i>shed,</i>	ibid.	<i>dies,</i>	ibid.
<i>Violent Motion, the Motion of Li-</i>	ibid.	<i>(10.) Motion of Avoidance,</i>	ibid.
<i>berty,</i>	ibid.	<i>Exemplified in Tastes and Odours,</i>	534
<i>(4.) The Motion of Extention,</i>	528	<i>In the Antiperistasis of Cold and</i>	ibid.
<i>Exemplified in Air,</i>	ibid.	<i>Heat,</i>	ibid.
<i>And Water,</i>	ibid.	<i>In odoriferous Bodies, and Quick-</i>	ibid.
<i>(5.) The Motion of Continuity,</i>	ibid.	<i>silver,</i>	ibid.
<i>(6.) The Motion of Acquisition,</i>	529	<i>In Oil and Water,</i>	ibid.
<i>Exemplified in Leaf-Gold,</i>	ibid.	<i>(11.) Motion of Assimilation,</i>	ibid.
<i>Spongy Bodies attracting Moisture,</i>	ibid.	<i>Exemplified in the Nutrition and</i>	ibid.
<i>A Rule for dissolving Bodies,</i>	ibid.	<i>Assimilation of Plants and Ani-</i>	535
<i>Electricity what,</i>	ibid.	<i>mals,</i>	535
<i>(7.) Motion of the greater Congre-</i>	ibid.		
<i>gation,</i>	ibid.		

CONTENTS.

	Page		Page
Paracelsus's Notion of Nutrition	535	Use of this Doctrine,	541
<i>censured,</i>	<i>ibid.</i>	The Motion of Resistance invinci-	<i>ibid.</i>
Nutrition, how performed,	<i>ibid.</i>	<i>ble; but not, perhaps, that of</i>	<i>ibid.</i>
Accretion,	<i>ibid.</i>	<i>Connection,</i>	<i>ibid.</i>
The Motion of Assimilation regards	536	The other Motions govern and obey	541
the Propagation of Bodies,	<i>ib.</i>	<i>each other,</i>	<i>ibid.</i>
(12.) The Motion of Excitation,	<i>ib.</i>	Exemplified,	<i>ibid.</i>
Wherein it agrees and differs from	<i>ibid.</i>	The Manner and Proportion where-	<i>ibid.</i>
the Motion of Assimilation,	<i>ibid.</i>	<i>in Motion yields, to be observed,</i>	<i>ibid.</i>
Exemplified in Heat,	<i>ibid.</i>		542
In the Magnet, &c.	<i>ibid.</i>	The Resistance of Motion to be dis-	<i>ibid.</i>
(13.) The Motion of Impression, <i>ib.</i>	<i>ibid.</i>	<i>covered,</i>	<i>ibid.</i>
Differs from the two preceding	<i>ibid.</i>	The Rules of Predominacy to be	<i>ibid.</i>
Motions,	<i>ibid.</i>	<i>collected,</i>	<i>ibid.</i>
Depends upon the first Mover,	537	(25.) Intimating Instances,	543
Exemplified in Light, Sound, <i>ibid.</i>	<i>ibid.</i>	(26.) Sovereign Instances,	<i>ibid.</i>
And Magnetism,	<i>ibid.</i>	The seven Ways or Means of Pra-	<i>ibid.</i>
(14.) The Motion of Configuration	<i>ibid.</i>	<i>ctice,</i>	<i>ibid.</i>
exemplified in the Motion of the	<i>ibid.</i>	The Instruments and Contrivances	<i>ibid.</i>
Heavens,	538	<i>required in the first Way; viz.</i>	<i>ibid.</i>
The Magnetic Needle,	<i>ibid.</i>	<i>containing Vessels and Covers,</i>	<i>ibid.</i>
And the Arrangement of Concretes,	<i>ibid.</i>		544
(15.) The Motion of Transition, <i>ib.</i>	<i>ibid.</i>	Caves, Pits and Wells,	<i>ibid.</i>
(16.) The regal or political Mo-	<i>ibid.</i>	The Diving-Bell,	<i>ibid.</i>
<i>tion,</i>	<i>ibid.</i>	A new Use of close Operation,	<i>ibid.</i>
Exemplified in Spirits,	<i>ibid.</i>	An Objection to it removed,	545
(17.) Spontaneous Motion of Rota-	<i>ibid.</i>	The second Means of Practice;	<i>ibid.</i>
<i>tion,</i>	539	<i>viz. Violence,</i>	<i>ibid.</i>
Motion in General, of three Kinds,	<i>ibid.</i>	Whether Bodies may be perma-	<i>ibid.</i>
	<i>ibid.</i>	<i>nently condensed, or rarified, by</i>	<i>ibid.</i>
Motion of Rotation has nine Differ-	<i>ibid.</i>	<i>Force,</i>	546
<i>ences,</i>	<i>ibid.</i>	An Experiment recommended for	<i>ibid.</i>
Whether the Motion of Rotation be	<i>ibid.</i>	<i>condensing Water,</i>	<i>ibid.</i>
<i>proper to the celestial Bodies, ib.</i>	<i>ibid.</i>	Another for rarifying Air,	<i>ibid.</i>
(18.) The Motion of Trepidation,	540	Such Condensations and Rarifica-	<i>ibid.</i>
	<i>ibid.</i>	<i>tions probable,</i>	<i>ibid.</i>
Exemplified,	<i>ibid.</i>	The third Means of Practice,	547
(19.) Motion of Indolence,	<i>ibid.</i>	The increasing of Cold recommend-	<i>ibid.</i>
Exemplified,	<i>ibid.</i>	<i>ed,</i>	<i>ibid.</i>
Recapitulation of the Doctrine of	<i>ibid.</i>	Bodies potentially cold,	548
Motions,	541	Two Ways of condensing the Spirits	<i>ibid.</i>
		<i>by Narcoticks,</i>	<i>ibid.</i>
		The	<i>ibid.</i>

CONTENTS.

	Page		Page
<i>The Preparatives to Cold,</i>	548	<i>of Things,</i>	552
<i>The Ways of condensing, without Cold, to be enquired after,</i>	ibid.	<i>The Consent betwixt Bodies, and their Aliments,</i>	553
<i>Art of four Kinds,</i>	ibid.	<i>The Consent betwixt the Senses and their Objects,</i>	ibid.
<i>Condensations by Consent in Animals,</i>	549	<i>Sympathies and Antipathies,</i>	ibid.
<i>The Uses to be made of Heat,</i>	ibid.	<i>To be duly collected,</i>	554
<i>The gentle Heats recommended, ib.</i>		<i>The Consent of the Moon,</i>	ibid.
<i>Art operates quicker than Nature,</i>	550	<i>A Disposition, or Indisposition, to Union by Apposition,</i>	ibid.
<i>The several Diversities of Heat to be tried,</i>	ibid.	<i>The last Means of Practice; viz. by variously combining the former Six,</i>	555
<i>Small, irregular, stated Heats recommended,</i>	ibid.	<i>(27.) Magical Instances,</i>	ibid.
<i>The Inadvertence of the Alchemists in using a constant Heat,</i>	551	<i>Magical Effects, how produced, ib.</i>	
<i>The fourth Means of Practice; viz. Continuance,</i>	ibid.	<i>Their Requisites,</i>	ibid.
<i>The Motions of confined Bodies suffer Violence,</i>	ibid.	<i>The Novum Organum, not a Philosophy, but a Logick,</i>	556
<i>The fifth Means of Operating; viz. by regulating Motions,</i>	552	<i>Recapitulation of the Doctrine of Prerogative Instances,</i>	ibid.
<i>The sixth Means of Practice; viz. Consent,</i>	552	<i>These Instances assist either the Sense or Understanding,</i>	ibid.
<i>The more universal Consents of Things; their Differences, ibid.</i>		<i>Their Use to Practice,</i>	557
<i>Sulphur and Mercury two Tribes</i>		<i>How these several Instances are to be employed,</i>	ibid.
		<i>Conclusion,</i>	ibid.

APPENDIX

To the Second Part of the INSTAURATION.

<i>THE Novum Organum left unfinished,</i>	561	<i>Gunther's Books of Method,</i>	ibid.
<i>The finishing of it, a Thing of Consequence,</i>	ibid.	<i>Weigelius's Analyſis Ariſtotelica,</i>	ib.
<i>The Author has left Direction about it,</i>	ibid.	<i>Des Cartes de Methodo,</i>	ibid.
<i>The Attempts of others in the same general Kind,</i>	562	<i>Tſchirnhaus's Medicina Mentis,</i>	ib.
<i>Aristotle's Analytics,</i>	ibid.	<i>The Occasion of that Work,</i>	ibid.
		<i>The Perfection of Algebra,</i>	563
		<i>The Foundation of Certainty,</i>	ibid.
		<i>The Cautions required in laying it,</i>	ibid.
		<i>The</i>	

CONTENTS.

	Page		Page
<i>The Way of discovering new Truths,</i>	562	<i>The Result of the first Section,</i>	570
<i>That Men may form just Definitions,</i>	564	<i>The Result of the second Section, ib.</i>	
<i>Rules for forming them,</i>	ibid.	<i>False Imaginations belonging to Men in general,</i>	ibid.
<i>The First,</i>	ibid.	<i>Others to each Man in particular,</i>	571
<i>The Second,</i>	ibid.	<i>False Notions arising from Words,</i>	ibid.
<i>The Third,</i>	ibid.	<i>The Result of the third Section,</i>	572
<i>The Elements of Things,</i>	ibid.	<i>Sophistical Philosophies, what,</i>	ibid.
<i>This Method Algebraical,</i>	565	<i>False Notions arising from fantastick Theories,</i>	ibid.
<i>How to be facilitated; viz. (1.) by correcting Errors,</i>	ibid.	<i>Empirical Philosophies, what,</i>	ibid.
<i>(2.) Distinguishing betwixt the Understanding and Imagination; and making them co-operate,</i>	ibid.	<i>Superstitious Philosophies what, ib.</i>	
<i>Valuing what is known; and having no immediate Regard to Utility,</i>	566	<i>The Mind abuses itself by forming false Notions,</i>	ibid.
<i>Helping the Indifference of the Mind; shortning the Work, and obtaining Time for it,</i>	ibid.	<i>The Mind subject to two Excesses,</i>	573
<i>The Discovery of unknown Truths, to regard three Particulars, ibid.</i>		<i>False Demonstrations,</i>	ibid.
<i>The Medicina Mentis compared with the Novum Organum,</i>	ibid.	<i>The Logical Kind false when applied to Physics,</i>	ibid.
<i>The English Philosophers who have endeavoured at Methods,</i>	567	<i>Experience the best Demonstration,</i>	ibid.
<i>Mr. Boyle's Method,</i>	ibid.	<i>The Result of the fourth Section,</i>	ibid.
<i>Mr. Locke's Essay upon Human Understanding,</i>	568	<i>The corrupt Philosophy of Aristotle spread over Europe,</i>	ibid.
<i>Dr. Hooke's Method of improving Natural Philosophy,</i>	ibid.	<i>The best Way of judging a Philosophy is by its Fruits,</i>	574
<i>Left unfinished,</i>	ibid.	<i>The Result of the fifth Section,</i>	ibid.
<i>Sir Isaac Newton's Method conjectured,</i>	569	<i>Natural Philosophy little cultivated; and has laboured under great Difficulties through the several Ages of the World,</i>	ibid.
<i>His Algebra and Fluxions,</i>	ibid.	<i>The Result of the sixth Section,</i>	ibid.
<i>His Method of Induction,</i>	ibid.	<i>The Reasons there are to expect a further Improvement of Philosophy; or the Way of building up Philosophy a-new,</i>	ibid.
<i>The general Scheme of the Novum Organum divided into two Parts,</i>	ibid.		
<i>The first Part divided into seven Sections,</i>	570		

The

CONTENTS:

	Page		Page
<i>By forsaking the past Errors,</i>	576	<i>The Method of Rejection, how to be</i>	ibid.
<i>And proceeding in a new Method,</i>	ibid.	<i>practised,</i>	ibid.
<i>Result of the last Section of the first</i>	ibid.	<i>The Interpretation of Nature, how</i>	ibid.
<i>Part,</i>	577	<i>begun,</i>	ibid.
<i>That a hasty Desire of Advantages</i>	ib.	<i>By Way of Permission to the Under-</i>	583
<i>in Philosophy frustrates itself, ib.</i>	ibid.	<i>standing,</i>	ibid.
<i>Objections against a History of Na-</i>	ibid.	<i>The second Section tends to perfect</i>	ibid.
<i>ture answered,</i>	ibid.	<i>the Art of Induction,</i>	ibid.
<i>Objections that all former Philoso-</i>	578	<i>The various Kinds of Instances, for</i>	ibid.
<i>phies are rejected,</i>	ibid.	<i>that Purpose,</i>	ibid.
<i>Answered,</i>	ibid.	<i>The Doctrine of Instances, how</i>	584
<i>That this Scheme has regard to Con-</i>	ibid.	<i>treated by the Author,</i>	ibid.
<i>templation as well as Practice, ib.</i>	ibid.	<i>The Novum Organum how imperfect,</i>	ibid.
<i>The Method here proposed not used</i>	ibid.	<i>Eight general Heads thereof re-</i>	585
<i>by the Ancients,</i>	ibid.	<i>maining unspoke to,</i>	ibid.
<i>Does not destroy the Sciences already</i>	579	<i>The Helps of Induction,</i>	ibid.
<i>in being,</i>	ibid.	<i>The Rectification of Induction,</i>	ibid.
<i>General Scheme of the second Part,</i>	ibid.	<i>Means of rectifying Induction,</i>	586
<i>The Foundation of the Whole laid</i>	ibid.	<i>Induction à Priori,</i>	ibid.
<i>in the Discovery of Forms,</i>	ibid.	<i>Induction à Posteriori,</i>	ibid.
<i>The Use of Forms, when discovered,</i>	ibid.	<i>The Method of varying Enquiries,</i>	587
<i>The Discovery of Forms explained</i>	580	<i>The Procedure from Particulars to</i>	ibid.
<i>and illustrated,</i>	ibid.	<i>Generals,</i>	ibid.
<i>Practice to preside in building up the</i>	ibid.	<i>The Prerogative Natures for En-</i>	ibid.
<i>Sciences,</i>	ibid.	<i>quiry,</i>	ibid.
<i>The Canons and Axioms required to</i>	581	<i>The Limits of Enquiry,</i>	588
<i>Practice,</i>	ibid.	<i>The History of Nature, to be col-</i>	ibid.
<i>The Interpretation of Nature, divi-</i>	ibid.	<i>lected,</i>	ibid.
<i>ded into two Parts,</i>	ibid.	<i>The reducing of Enquiries to Pr-</i>	ibid.
<i>The History requisite thereto,</i>	ibid.	<i>ctice,</i>	ibid.
<i>The Method of investigating Forms,</i>	ibid.	<i>The Preliminaries to Enquiry,</i>	589
<i>Tables to be made,</i>	582	<i>The ascending and descending Scale</i>	ibid.
<i>From whence to be derived,</i>	ibid.	<i>of Axioms,</i>	ibid.
		<i>Conclusion,</i>	590

P R E F A C E.

S U P P L E M E N T V I I I.

A S P E C I M E N

O F T H E

P E R S I A N M A G I C K :

O R,

An ESSAY towards deriving P O L I T I C A L *from*
N A T U R A L K N O W L E D G E ; *on occasion of*
an UNION betwixt E N G L A N D *and*
S C O T L A N D .

Dedicated, in private, to King JAMES I.

VOL. II.

B

P R E F A C E.

THE primary View of the following Piece was, doubtless, indirectly to convey Instruction to the King, in his Design of uniting the two Kingdoms: A Subject afterwards thoroughly digested, and closely studied by the Author, in all its Branches, under the Title of Certain Articles, or Considerations, touching the Union of the Kingdoms of England and Scotland, collected and dispersed, for his Majesty's better Service ^a.

To gain the more favourable audience of a Prince who valued himself for his Learning, the Author seems to have chose this learned Expedient; and under pretence of reviving the Persian Magick, reads a political Lecture upon the proper method of uniting Kingdoms. Yet this primary Intention did not over-rule the Author's Design of giving a Specimen of what may, both from the nature of the thing, and the ancient accounts, be rationally conceived a part of the Persian Magick; viz. the drawing Rules and Maxims of Government from Physical Observations ^b: Which is also said to be done, with great Exactness, by the Chinese. The Subject is prosecuted by the Author in the same manner as he interprets the Heathen Mythology, in his Sapiientia Veterum. And in that manner it had been easy for a person of his extensive Knowledge in Physicks and Politicks, to have wrote a System of this kind of Persian Magick: A Work reserved for some other eminent Philosopher and Politician, to finish upon this Plan.

^a See Mr. Blackbourn's Edition of the Author's Works, Vol. IV. p. 234.

^b For more particular Informations in this respect consult the *De Augmentis Scientiarum*, Sect. III & VI. and Dr. Hyde's *Historia Religionis Veterum Persarum, eorumq; Magorum*, &c. p. 374, &c.

P R E F A C E.

THE primary purpose of the following Paper was, doubtless, indirectly to convey information to the King, by the Degree of which, that our Kingdom is a Subject after-wards thoroughly digested, and elegantly finished by the Author, in all its branches, under the Title, 'Current Affairs or Considerations, touching the Union of the Kingdoms of England and Scotland, collected and digested, for his Majesty's private Service.'

To gain the more favourable audience of a Prince who valued himself for his Learning, the Author seems to have chose this manner of Expression; and under pretence of treating the Political Magick, treats a political Lecture upon the proper method of uniting Kingdoms. For this primary intention did not content the Author's Degree of giving a Specimen of what may, both from the nature of the thing, and the ancient accounts, be reasonably conceived a part of the Political Magick; viz. the drawing Rules and Maxims of Government from Physical Observations: Which is also said to be done, with great Exactness by the Chinese. The Subject is presented by the Author in the same manner, as he introduces the Historical Philosophy, in his 'Scientific Treatise.' And in this manner it had been easy for a portion of his extensive Knowledge in Physics and Politics, to have treated a System of this kind of Political Magick: A Work intended for some other eminent Philosopher and Politician, to judge upon this Plan.

See Mr. Blackstone's Edition of the Author's Works, Vol. IV. p. 113. The above paragraph is inserted in the paper which the Author has sent, dated 11th Dec. 1767, and Dr. Hume's History of Great Britain, 1767, 1768, 1769, 1770, 1771, 1772, 1773, 1774, 1775, 1776, 1777, 1778, 1779, 1780, 1781, 1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1791, 1792, 1793, 1794, 1795, 1796, 1797, 1798, 1799, 1800, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1825, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2687, 2688, 2689, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2717, 2718, 2719, 2720, 2721, 2722, 2723, 2724, 2725, 2726, 2727, 2728, 2729, 2730, 2731, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 2740, 2741, 2742, 2743, 2744, 2745, 2746, 2747, 2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755, 2756, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2775, 2776, 2777, 2778, 2779, 2780, 2781, 2782, 2783, 2784, 2785, 2786, 2787, 2788, 2789, 2790, 2791, 2792, 2793, 2794, 2795, 2796, 2797, 2798, 2799, 2800, 2801, 2802, 2803, 2804, 2805, 2806, 2807, 2808, 2809, 2810, 2811, 2812, 2813, 2814, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 2823, 2824, 2825, 2826, 2827, 2828, 2829, 2830, 2831, 2832, 2833, 2834, 2835, 2836, 2837, 2838, 2839, 2840, 2841, 2842, 2843, 2844, 2845, 2846, 2847, 2848, 2849, 2850, 2851, 2852, 2853, 2854, 2855, 2856, 2857, 2858, 2859, 2860, 2861, 2862, 2863, 2864, 2865, 2866, 2867, 2868, 2869, 2870, 2871, 2872, 2873, 2874, 2875, 2876, 2877, 2878, 2879, 2880, 2881, 2882, 2883, 2884, 2885, 2886, 2887, 2888, 2889, 2890, 2891, 2892, 2893, 2894, 2895, 2896, 2897, 2898, 2899, 2900, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 2910, 2911, 2912, 2913, 2914, 2915, 2916, 2917, 2918, 2919, 2920, 2921, 2922, 2923, 2924, 2925, 2926, 2927, 2928, 2929, 2930, 2931, 2932, 2933, 2934, 2935, 2936, 2937, 2938, 2939, 2940, 2941, 2942, 2943, 2944, 2945, 2946, 2947, 2948, 2949, 2950, 2951, 2952, 2953, 2954, 2955, 2956, 2957, 2958, 2959, 2960, 2961, 2962, 2963, 2964, 2965, 2966, 2967, 2968, 2969, 2970, 2971, 2972, 2973, 2974, 2975, 2976, 2977, 2978, 2979, 2980, 2981, 2982, 2983, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 2999, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 3024, 3025, 3026, 3027, 3028, 3029, 3030, 3031, 3032, 3033, 3034, 3035, 3036, 3037, 3038, 3039, 3040, 3041, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3050, 3051, 3052, 3053, 3054, 3055, 3056, 3057, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3066, 3067, 3068, 3069, 3070, 3071, 3072, 3073, 3074, 3075, 3076, 3077, 3078, 3079, 3080, 3081, 3082, 3083, 3084, 3085, 3086, 3087, 3088, 3089, 3090, 3091, 3092, 3093, 3094, 3095, 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3104, 3105, 3106, 3107, 3108, 3109, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3120, 3121, 3122, 3123, 3124, 3125, 3126, 3127, 3128, 3129, 3130, 3131, 3132, 3133, 3134, 3135, 3136, 3137, 3138, 3139, 3140, 3141, 3142, 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3150, 3151, 3152, 3153, 3154, 3155, 3156, 3157, 3158, 3159, 3160, 3161, 3162, 3163, 3164, 3165, 3166, 3167, 3168, 3169, 3170, 3171, 3172, 3173, 3174, 3175, 3176, 3177, 3178, 3179, 3180, 3181, 3182, 3183, 3184, 3185, 3186, 3187, 3188, 3189, 3190, 3191, 3192, 3193, 3194, 3195, 3196, 3197, 3198, 3199, 3200, 3201, 3202, 3203, 3204, 3205, 3206, 3207, 3208, 3209, 3210, 3211, 3212, 3213, 3214, 3215, 3216, 3217, 3218, 3219, 3220, 3221, 3222, 3223, 3224, 3225, 3226, 3227, 3228, 3229, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3265, 3266, 3267, 3268, 3269, 3270, 3271, 3272, 3273, 3274, 3275, 3276, 3277, 3278, 3279, 3280, 3281, 3282, 3283, 3284, 3285, 3286, 3287, 3288, 3289, 3290, 3291, 3292, 3293, 3294, 3295, 3296, 3297, 3298, 3299, 3300, 3301, 3302, 3303, 3304, 3305, 3306, 3307, 3308, 3309, 3310, 3311, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3333, 3334, 3335, 3336, 3337, 3338, 3339, 3340, 3341, 3342, 3343, 3344, 3345, 3346, 3347, 3348, 3349, 3350, 3351, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3360, 3361, 3362, 3363, 3364, 3365, 3366, 3367, 3368, 3369, 3370, 3371, 3372, 3373, 3374, 3375, 3376, 3377, 3378, 3379, 3380, 3381, 3382, 3383, 3384, 3385, 3386, 3387, 3388, 3389, 3390, 3391, 3392, 3393, 3394, 3395, 3396, 3397, 3398, 3399, 3400, 3401, 3402, 3403, 3404, 3405, 3406, 3407, 3408, 3409, 3410, 3411, 3412, 3413, 3414, 3415, 3416, 3417, 3418, 3419, 3420, 3421, 3422, 3423, 3424, 3425, 3426, 3427, 3428, 3429, 3430, 3431, 3432, 3433, 3434, 3435, 3436, 3437, 3438, 3439, 3440, 3441, 3442, 3443, 3444, 3445, 3446, 3447, 3448, 3449, 3450, 3451, 3452, 3453, 3454, 3455, 3456, 3457, 3458, 3459, 3460, 3461, 3462, 3463, 3464, 3465, 3466, 3467, 3468, 3469, 3470, 3471, 3472, 3473, 3474, 3475, 3476, 3477, 3478, 3479, 3480, 3481, 3482, 3483, 3484, 3485, 3486, 3487, 3488, 3489, 3490, 3491, 3492, 3493, 3494, 3495, 3496, 3497, 3498, 3499, 3500, 3501, 3502, 3503, 3504, 3505, 3506, 3507, 3508, 3509, 3510, 3511, 3512, 3513, 3514, 3515, 3516, 3517, 3518, 3519, 3520, 3521, 3522, 3523, 3524, 3525, 3526, 3527, 3528, 3529, 3530, 3531, 3532, 3533, 3534, 3535, 3536, 3537, 3538, 3539, 3540, 3541, 3542, 3543, 3544, 3545, 3546, 3547, 3548, 3549, 3550, 3551, 3552, 3553, 3554, 3555, 3556, 3557, 3558, 3559, 3560, 3561, 3562, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577, 3578, 3579, 3580, 3581, 3582, 3583, 3584, 3585, 3586, 3587, 3588, 3589, 3590, 3591, 3592, 3593, 3594, 3595, 3596, 3597, 3598, 3599, 3600, 3601, 3602, 3603, 3604, 3605, 3606, 3607, 3608, 3609, 3610, 3611, 3612, 3613, 3614, 3615, 3616, 3617, 3618, 3619, 3620, 3621, 3622, 3623, 3624, 3625, 3626, 3627, 3628, 3629, 3630, 3631, 3632, 3633, 3634, 3635, 3636, 3637, 3638, 3639, 3640, 3641, 3642, 3643, 3644, 3645, 3646, 3647, 3648, 3649, 3650, 3651, 3652, 3653, 3654, 3655, 3656, 3657, 3658, 3659, 3660, 3661, 3662, 3663, 3664, 3665, 3666, 3667, 3668, 3669, 3670, 3671, 3672, 3673, 3674, 3675, 3676, 3677, 3678, 3679, 3680, 3681, 3682, 3683, 3684, 3685, 3686, 3687, 3688, 3689, 3690, 3691, 3692, 3693, 3694, 3695, 3696, 3697, 3698, 3699, 3700, 3701, 3702, 3703, 3704, 3705, 3706, 3707, 3708, 3709, 3710, 3711, 3712, 3713, 3714, 3715, 3716, 3717, 3718, 3719, 3720, 3721, 3722, 3723, 3724, 3725, 3726, 3727, 3728, 3729, 3730, 3731, 3732, 3733, 3734, 3735, 3736, 3737, 3738, 3739, 3740, 3741, 3742, 3743, 3744, 3745, 37

A
S P E C I M E N
O F T H E
P E R S I A N M A G I C K , & c .

1. **T**IS no wonder, excellent *King*, that when *Heraclitus* the *obscure*, Political had publish'd a certain *Book*, not now extant, many took it Rules drawn from Physical Observations, among the Persians. for a *Discourse of Nature*, and others for a *Treatise of Politicks*. For there is a great affinity between the *Rules of Nature*, and the *true Rules of Policy*; the one being no more than an *Order in the Government of the World*, and the other an *Order in the Government of a State*. Whence the *Kings of Persia* were educated, and instructed in a *Science* that went by a name of great reverence, tho now degenerated, and taken in an ill sense: For the *Persian Magick*, which was the *secret Literature of their Kings*, was an application of the contemplations and observations of *Nature*, to a *political sense*; thus making the *fundamental Laws of Nature*, an *Original, first Model*, or *Pattern*, for *Government* ^d.

2. In pursuance of this method, the *Persian Instructors* set before their *Kings*, the *Examples of the celestial Bodies*; the *Sun*, the *Moon*, &c. which *Illustrated by Examples drawn from the Celestial Bodies*, have great glory and veneration, but no rest; being in a perpetual office of motion, for cherishing the inferior bodies in their respective turns and course: Thus likewise expressing the true nature of the *motions of Government*; which, tho they ought to be *swift and rapid*, in respect of dispatch and occasions, yet are to be *constant and regular*, without wavering or confusion.

3. Their *Instructors* also represented to them, that the *Heavens* are not *The raising of Vapour and returning Rain*, enrich'd by the *Earth* and the *Seas*; nor keep a *dead stock*, or *untouch'd treasure* of what they attract from below: But whatever moisture they *levy*, and take from both those *Elements in Vapour*, they spend, and return in *Showers*; only holding and storing them up for a time, in order to issue and distribute them in *season* ^e.

4. But chiefly they express'd, and explain'd to them the *fundamental Law of Nature*, whereby all things subsist, and are preserved; viz. that all *things in Nature*, tho' they have their own private and particular affections and *appetites*, ^{The general affections taking place of particular.}

^e See the *De Augmentis Scientiarum*, Sect. III. 3.

^d The Author makes a happy use of this method in his own *Political Writings*; and constantly draws and illustrates his *Politicks* from *Philosophy*, and examples of *Nature*. And surely somewhat considerable might be effected, by thus making the *Government of the Universe*, a *Model for the Government of States*. See the *Sapientia Veterum*, Sect. III.

^e The Author shews great *Address* in his several *Applications to King James the First*: A Prince whose *Temper and Disposition* he thoroughly understood. See SUPPLEMENT V. ad finem.

appetites, which they follow in smaller matters, when free from more general and common Respects; yet, when there is cause for sustaining the more GENERAL, forsake their own particulars, and conspire to uphold the Publick. Thus we see Iron in a small quantity will ascend, and approach the Loadstone, by a particular sympathy: But if the Iron be in any large quantity, it drops its appetite of amity to the Loadstone, and, like a true Patriot, cleaves to the Earth, which is the Region of massy bodies. So Water, and other matters, fall towards the centre of the Earth, which is their Region or Country; and yet nothing is more usual in Water-works and Engines, than for the Water, rather than suffer any disunion in Nature, to ascend; and forsaking the love of its own Region or Country, apply itself to the Body next adjoining.

Sudden
Changes
usually at-
tended with
violence.

5. There are numerous Examples of this kind. Your Majesty singled out one in your gracious Speech of Thanks to your Council, when princely acknowledging their vigilancy and merits, you were pleas'd to note, that it was a Success and Event above the course of Nature, to have so great a change brought about with so great quiet: because sudden mutations as well in a State as in Nature, rarely happen without violence and perturbation^f: Whence again I conclude there is a congruity between the Principles of Nature and Policy. And, lest your own Instance shou'd seem to contradict the assertion, I offer your Majesty a type, or example in Nature, much resembling this event in your State; viz. Earthquakes, which often produce great terror and surprize, but no real mischief; the Earth trembling for a moment, and suddenly establishing itself in a perfect quiet again.

An attempt
to revive the
Persian Ma-
gick, in the
Instance of
uniting
Kingdoms.

6. This Knowledge therefore of making the Government of the World a Mirror for the Government of a State, being almost lost, by reason, perhaps, of the difficulty for one man to compass both Philosophies^g; I have thought proper to make some little Essay to revive it, in treating of one particular^h, wherewith I humbly present your Majesty: For as 'tis a Form of Discourse anciently used to Kings; what King could it more properly be laid before, than a King studious of joining contemplative and active Virtue together?

And parti-
cularly ap-
plied to the
Union of
England and
Scotland.

7. Your Majesty is the first King, who had the honour of being the Corner-Stone to unite these two mighty and warlike Nations of England and Scotland, under one sovereignty and monarchy. It does not appear by the Records or Memoirs of any true History; and scarce by any fabulous Narration, or Tradition, that ever this Island of Great Britain was from any antiquity united under one King before this day. And yet there are no Mountains nor Ridges of Hills; no Seas or great Rivers; no diversity of Tongue or Language, that has invited, or provoked, this ancient separation or divorce. The Lot of Spain was to have the several kingdoms of that Continent, except Portugal, united in a late age; and now in our age that of Portugal also: Which was the last that held out from being incorporated with the rest.

^f This is spoke with regard to the King's first coming in. See SUPPLEMENT II.

^g For it is very rare that Politicians are good Natural Philosophers; tho doubtless many excellent Rules and Examples of Government are easily derivable from Physical Observations.

^h Viz. the Consideration of the Union betwixt England and Scotland; so that the following Doctrine chiefly regards this particular Union; without taking notice of the other Points of Government; such as Conquest, Laws, Liberties, Civil Rites, Taxes, Trade, Religion, &c. which might perhaps be advantageously treated in the same manner; by copying Nature, or the Wisdom display'd in the Government of the World and its Parts.

rest. It has likewise been the Lot of *France*, much about the same time, to have re-annex'd to that *Crown* the several *Dutchies* and *Portions* which were in former times dissever'd. The Lot of this Island is the last, reserved for your Majesty's times, by the special providence and favour of GOD, who has brought you to this happy conjunction with great consent of hearts, in the strength of your years, and the maturity of your experience. It remains, therefore, that I set before your Majesty the *Grounds of Nature, in the union and commixture of Bodies*; and the correspondence they have with the *Grounds of Policy, in the conjunction of States and Kingdoms*.

8. First then, the Position that *Force is corroborated by Union*; being one of the common notions of the mind, needs no great induction or illustration. (1.) We find the *Sun* in *Leo* causes more vehement heats than when in *Cancer*; tho his Rays are more perpendicular in the latter Sign: The reason whereof, in great measure, has been truly ascribed to the conjunction of the *Sun* and *cor-radiation* of the *Sun* with four *Stars* of the first magnitude; viz. *Sirius, Canicula, Cor Leonis, and Cauda Leonis*. (2.) So the *Moon*, likewise, whilst in *Leo*; is by ancient tradition said to be at the *heart*; not for any affinity which that Place of the Heavens can have with that part of the human Body; but because the *Moon* is then, thro' her conjunction and near approach to the aforesaid *fix'd Stars*, in greatest strength and influence; and thence operates upon that part in inferior bodies, which is principal, and most vital. (3.) Thus again, *Waters* and *Liquors*, in small quantity, easily putrefy and corrupt; but in larger quantities subsist long; from the strength they receive by union. (4.) So in *Earthquakes*, the more general ones do little hurt, by reason of the united weight they offer to subvert; but limited and particular *Earthquakes* have often overturned whole *Towns* and *Cities*.

9. The force of *Union* therefore is evident: But the manner of *Union* may require a fuller illustration. It will not at present be pertinent to treat of *Union by Victory*, when one body merely subdues another, and converts the same into its own nature; extinguishing and expelling the parts it cannot overcome: As when the fire converts wood into fire; purging away the smoke and the ashes, as matters unapt to inflame: Or when the body of a living creature converts and assimilates food and nourishment, purging off and expelling what it cannot convert. For these representations answer in matters of Policy to *Union of Countries by conquest*; where the conquering State extinguishes, extirpates, and expels any part of the State conquered, which it finds so contrary, as not to be alter'd or converted. And therefore, leaving violent *Unions*, we will consider only such as are natural.

10. It is an excellent Difference which the best Observers of Nature make between *Composition* and *Mixture*, or putting together and mingling: The one being but a conjunction of bodies in place; the other of quality and consent: The one, the mother of *Sedition* and *Alteration*; the other of *Peace* and *Continuance*; the one rather a *Confusion* than an *Union*; the other properly an *Union*. Therefore we see (1.) that those Bodies call'd imperfect Mixts, continue not; but are soon dissolved. For example, *Snow* and *Ice*, which

¹ The due Prosecution of this Difference, in its physical Causes, might import natural philosophy, no less than civil Policy.

are *Compositions* of *Air* and *Water*, easily sever and dissolve; the *water* closing together, and excluding the *Air*. (2.) So the three bodies celebrated by the *Alchemists*, as the *three Principles of Things*; viz. *Earth*, *Water*, and *Oil*; or *Salt*, *Mercury* and *Sulphur*, if united only by *composition*, or putting together, we see how weakly and rudely they incorporate: For *Water* and *Earth* make but an imperfect *Slime*; and tho forced together by agitation, yet upon a little standing, the *Earth* subsides to the bottom. (3.) So when *Water* and *Oil*, are by agitation brought to an *Unguent*; yet after a little standing, the *Oil* will float a-top: For these imperfect *Mixtures* continue no longer than they are forced; and still in the end, the worthiest gets uppermost. (4.) But the case is otherwise in perfect *Mixtures*. Thus the three bodies of *Earth*, *Water*, and *Oil*, when join'd in a *Vegetable* or *Mineral*, are so united, as that without great subtilty of art, and force of extraction, they cannot be separated and reduced to the same simple bodies again. Whence the difference between *Composition* and *Mixture* is clearly this; that *Composition* is the joining, or putting together of *Bodies* without a new *FORM*; and *Mixture* the joining, or putting together of *Bodies*, under a new *FORM*. For the new *FORM* is the common *Link*, without which the old ones will be at strife and discord^k.

Of perfect
Mixtures.

The Doctrine
applied to
civil Policy;

And illustra-
ted in the
Roman State.

11. To reflect this *Light of Nature* upon *Matters of State*: Two different kinds of *Policy* have been practised for uniting and conjoining of *States* and *Kingdoms*; the one is to retain the ancient *FORM* still severed, and only conjoin'd in *Sovereignty*; the other to superinduce a new *FORM*, agreeable and convenient to the entire *State*. The former of these has been the more usual, and is the *easiest*; but the latter the more *happy*. For whoever attentively revolves the *Histories* of all *Nations*, and forms a true judgment upon them, will conclude that no *States*, besides the *Roman*, were a good commixture. And this being the best *State* in *History*, and the best *Example* to our present point, we will chiefly insist upon it. In the *Antiquities* of *Rome*, *Virgil* brings in *Jupiter*, by way of Oracle or Prediction, speaking of the mixture of the *Trojans* and the *Italians*, where *Jupiter* makes a kind of partition or distribution; viz. that *Italy* shou'd give the *Language* and the *Laws*; *Troy* a *Mixture* of men, and some religious *Rites*; and both people shou'd meet in the sole name of *Latins*^l.

12. Soon after the foundation of the *City of Rome*, the *Romans* and *Sabines* mingled upon equal terms: Wherein the interchange went so even, that, as *Livy* notes, the one *Nation* gave name to the place, the other to the people. For *Rome* continued the name, but the people were call'd *Quirites*; which was the *Sabine* word, deriv'd from *Curos*, the country of *Tatius*.

13. But
^k Whoever wou'd prosecute this *Persian Magick* in other parts of *Government*, shou'd imitate the *Author* in thus keeping a steady Eye both upon *Nature* and *Art*; or *Physicks* and *Politicks*, at the same time: A thing whereof there are numerous instances in his *Writings*; more particularly in the *Sapientia Veterum*. See SUPPLEMENT VII. Sect. III.

^l Sermone Ausonii patrum moresq; tenebunt:

Utiq; est nomen eris; commixti corpore tantum,

Subsident Tauri; morem, ritusq; sacrorum

Adjiciam; faciamq; omnes, uno ore, Latinos.

Hinc genus Ausonio mistum, quod sanguine surget,

Supra homines, supra ire Deos pietate videbis. En. Lib. XII. v. 334, &c.

13. But what is chiefly to be observed in the whole continuance of the *Roman* Government; they were so liberal of *Naturalization*, that in effect they made perpetual Mixtures. For the manner was to naturalize, not only particular persons, but *Families*, *Lineages*, and even whole *Cities* and *Countries*. Whence at length *Rome* became a *Patria Communis*, or common Country, as some *Civilians* call it.

14. So we read of *St. Paul*, after he had been beaten with rods, and there-upon charged the officer with the violation of the privilege of a citizen of *Rome*; the captain said to him, *Art thou then a Roman? That privilege has cost me dear.* To whom *St. Paul* replied, *but I was so born*; and yet, in another place, *St. Paul* professes that he was a *Jew* by tribe: Whence 'tis manifest that some of his ancestors were *naturalized*; and so the Right was convey'd to him and their other descendants. Thus it was one of the first despites done to *Julius Caesar*, that whereas he had obtain'd *Naturalization* for a City in *Gaul*, a Person of that City was beaten with rods by the consul *Marcellus*. So we find in *Tacitus*, that in the Emperor *Claudius*'s time, the wilder part of the Nation of *Gaul*, call'd *Comata*, sued to be made capable of becoming Senators and Officers of *Rome*: And after long Debate, it was carried that they should be admitted. So likewise *Macbiavel*, enquiring the causes of the growth of the *Roman* Empire, gives judgment, that there was none greater; for this reason, that the State so easily compounded and incorporated with strangers.

15. 'Tis true, most States and Kingdoms have taken the contrary method; *A contrary course in other States has produced contrary effects.* whence the enlargement of Empire and Territory became matter of burthen to them, rather than strength^m: And even kept alive the seeds and roots of revolts and rebellions for many ages; as we see by a fresh and remarkable Example in the kingdom of *Aragon*: Which, tho united to *Castile* by marriage, not by conquest, and so descended in *hereditary union* for more than a hundred years; yet because it was continued in a *divided Government*, and not well *incorporated* and *cemented* with the other *Crowns*, now lately enter'd into a rebellion, on account of their liberties.

16. The several parts of the FORM whereby *States* and *Kingdoms* become perfectly united, are, besides the sovereignty itself, four; viz. (1.) *Union in Name*; (2.) *Union in Language*; (3.) *Union in Laws*; and (4.) *Union in Employments*. *Four Particulars required to the perfect Union of States, viz.*

(1.) For *Name*; tho it seem but a superficial and outward matter; yet it carries great impresson, and enchantment: The general and common name of *Græcia* made the *Greeks* always ready to unite (tho otherwise full of Divisions amongst themselves) against other Nations, which they call'd *barbarous*. The *Helvetian Name* is no small Cement to their *Leagues* and *Confederacies*. The common name of *Spain*, no doubt, has been a special means of the better union and conglutination of the several kingdoms of *Castile*, *Aragon*, *Granada*, *Navarre*, *Valencia*, *Catalonia*, and the rest; comprehending *Portugal*, of late.

17. (2.) For *Language*, 'tis needless to insist upon it; because both your Majesty's kingdoms are of one *Language*, tho of several *Dialects*; and the difference is so small between them, as promises rather an Enrichment of one *Language*, than a Continuation of two.

^m See the Fable of *Perseus* explain'd in the *De Augmentis Scientiarum*, Sect. II. See also Sect. XXV. of that Work, and the *Sapientia Veterum*, SUPPLEMENT VII. Sect. III.

(3.) For *Laws*, in general; which are the principal *sinews* of Government; they may be of three kinds; viz. (1.) *Jura*, which I term *Freedoms* or *Privileges*; (2.) *Leges*, or *Judicial Laws*; and (3.) *Manners*. For *Freedoms* and *Privileges*; they were among the *Romans* of four kinds or degrees; viz. (1.) *Jus Connubii*; (2.) *Jus Civitatis*; (3.) *Jus Suffragii*; and (4.) *Jus Petitionis*, or *Honorum*. 1. *Jus Connubii* is a thing at present out of use: For *Marriage* is open betwixt all *Diversities* of Nations. 2. *Jus Civitatis* answers to what we call *Denization*, or *Naturalization*. 3. *Jus Suffragii* answers to our *Voice* in *Parliament*; and 4. *Jus Petitionis* answers to our place in *Council*, or *Office*. The *Romans* afterwards separated these *Freedoms*; granting *Jus Connubii*, *sine civitate*; *Civitatem sine Suffragio*; and *Suffragium sine Jure Petitionis*; which was commonly with them the last

Judicial Laws. 18. For those we call *Judicial Laws*: 'Tis a matter of curiosity and inconvenience to endeavour the extirpation of all particular *Customs*; or to draw all Subjects to one place of *Judicature* and *Session*. 'Tis sufficient that there be an Uniformity in the principal and fundamental *Laws*, both *Ecclesiastical* and *Civil*.

And Manners. 19. For *Manners*; a consent in them is to be industriously sought, but not enforced: As nothing breeds so much pertinacity in a People to hold their *Customs*, as sudden and violent Attempts to change them.

(4) Employments. 20. And for *Employments*; it requires no more, than to carry an indifferent hand, and shew no favour to one Nation more than anotherⁿ.

Two capital Rules of Union in Government drawn from Nature; viz. To allow Time. 21. There remains only to remember, from the *Grounds of Nature*, the two conditions of perfect Mixture; the first whereof is *Time*. The natural Philosophers say well, that *Composition* is the work of Man; but *Mixture* the work of Nature. For 'tis the office of man to make a fit application of bodies together: But the perfect fermentation and incorporation of them must be left to Time and Nature; and all unnatural hastening does but disturb the Work, not promote it. So after the *Graft* is put into the Stock and bound up; it must be left to Time and Nature to make that continuous, which at first was but contiguous. And 'tis not any constant pressing or thrusting of the Parts together, that will hasten Nature's Season; but rather hinder it. So in *Liquors*, those Commixtures which are at the first troubled, grow afterwards clear and settled, by the benefit of Rest and Time.

And suffer the greater to attract the less. 22. The Second Condition is, that the greater draw the less. So when two Lights meet, the greater darkens and dims the lesser. And when a smaller River runs into a larger, it loses both its Name and Stream. And hereof we see an excellent Example in the Kingdoms of *Judah* and *Israel*. The Kingdom of *Judah* contained two Tribes; the Kingdom of *Israel* ten. King David reigned over *Judah* for certain Years; and after the Death of *Ishbosheth*, the Son of *Saul* likewise obtain'd the Kingdom of *Israel*. This Union continued in him, and in his Son *Solomon*, seventy years, at least, between them both: But because the seat of the Kingdom was kept still in *Judah*, and so the less sought the greater; upon the first occasion offer'd, the Kingdom broke again, and so continued ever after^o.

S U P.

ⁿ Might not the several Cases abovemention'd be exemplified, and illustrated, by apt Physical Observations?

^o This Piece is only proposed as a *Specimen*, not a finish'd Work; and may in some measure be supplied from the *Doctrine of Government*, deliver'd in the *De Augmentis Scientiarum*, Sect. XXV. the *Sapientia Veterum*, SUPPLEMENT VII. Sect. III. the *Piece of War*, SUPPLEMENT XII. and the *Prudent Statesman*, SUPPLEMENT XIII.

P R E F A C E

S U P P L E M E N T I X.

A

S P E C I M E N

O F

A N I M A T E D A S T R O N O M Y ;

O R,

An E S S A Y *towards* a P H I L O S O P H I C A L H I S T O R Y
of the H E A V E N S.

C 2

P R E-

THE NEW YORK

SUPPLEMENT IX

A

SPECIMEN

ANIMATED ASTRONOMY

AN ESSAY CONCERNING THE PHYSICAL HISTORY
OF THE HEAVENS

P R E F A C E.

THIS is an imperfect Piece, and, doubtless, never intended by the Author to be publish'd; till it had, in his usual manner, undergone a strict Correction.

The Original makes part of the Scripta, or the Author's Latin Posthumous Pieces publish'd by Gruter; and is inconsiderately tack'd to certain imperfect Chapters of the *De Augmentis Scientiarum*, under the Title of *Descriptio Globi Intellectualis*. The Design, however, appears by the Introduction, to have been completely form'd in the Mind of the Author; tho not executed in all its Parts; nor perfectly indeed in any one: For the first Part, which is the only one we have of it, wants the Uses promised in the Introduction. Had it been finish'd, it might have nobly supplied the Animated Astronomy set down for deficient in the *De Augmentis*; and, as it now stands, it exhibits the whole Plan, executes some considerable Proportion, and instructs a less able Architect to carry on the Work.

The Author proceeds in the cautious way of Enquiry, by Questions, and Arguments on both sides; without undertaking to determine anything in a Subject that lies so remote from direct Experiment. This Method has, perhaps, been too much neglected by Writers in Astronomy; for Questions are in the power of the Querist, and may gradually lead to great and solid Discoveries; whilst a dogmatical Procedure, pretending to over-rule things, is often frustrated, or falsify'd by farther Enquiry.

* See the *De Augmentis Scientiarum*, Sect. IV. 4, &c.

PREFACE

THIS is a reprint of the original manuscript of the author, which was first published in 1841, and has since been reprinted several times. The original manuscript was written in the author's own hand, and is now preserved in the archives of the British Museum. The present edition is a facsimile of the original, and is intended to be a permanent record of the author's work. The text is printed in a clear and legible type, and the illustrations are reproduced in a manner which does justice to the original. The paper is of a good quality, and the binding is of a durable material. The price is moderate, and the book is well adapted for use in libraries and schools.

LONDON: Printed by J. G. & J. H. Smith, 1841.

A
S P E C I M E N
O F
A N I M A T E D A S T R O N O M Y , & c.

I N T R O D U C T I O N .

1. **T**HE *History of the Celestial Bodies* should be simple, and unmixed with *Mens Conceits*, or *Opinions*; and candidly drawn up, without any Tincture of *Præoccupation*, or fondness for *Theory*; so as, separately and nakedly, to exhibit those *Phænomena*, which are, at present, bundled and dress'd up into *Theories* and *Systems*. We would, therefore, have this *History* wrote in such a manner, as if no Decree had pass'd; nor any thing been dogmatically asserted in all *Astronomy* and *Astrology*: And only the Observations, in both, had been taken, and the Experiments made, and set down with Accuracy, Judgment and Perspicuity. But there is nothing of this kind found among us¹. *Pliny* has only glanced at the Subject cursorily, and somewhat rudely. But perhaps a tolerable *History of the Celestial Bodies* might, with the assistance of the modern Observations, be drawn from the Works of *Ptolemy*, *Copernicus*, and other learned *Astronomers*; only such a *History* would entirely want the *Light of Experiments*².

2. It

¹ For the reason of the Title, See *De Augmentis Scientiarum*, Sect. IV. 4, &c.

² It were to be wish'd that more of it could be found at present: But Men seem now so thoroughly persuaded, that they have a true *Astronomical System*, on a mathematical Foundation, as scarce to admit of its being called in question. However, it may not be amiss for Posterity to receive our *Doubts* as well as our *Doctrines*.

³ Which are what must shew the true Causes of things, in the *System* and *Frame of the Universe*.

The Design of
this Enquiry
is forming a
genuine Phi-
losophy of the
Heavens.

2. It may, perhaps, seem strange, that we should here bring the *Sy- stems* that have been raised, improv'd, and enlarg'd with so much Labour, back to their original, artless forms, and simple observations: But we have a much greater *Work* in view; tho without any intention of losing the least of former *Discoveries*. For we here propose, not only the business of *Astronomical Calculations*, and sure *Astrological Predictions*; but a genuine *Philosophy*, for informing the Understanding; not only a discovery of the *motions and revolutions* of the celestial Bodies, but also their substance, influence, powers and qualities of all kinds: And this according to the natural and sound reasons of things themselves; without levity, credulity, or any superstitious regard to Traditions: Intending such a *Philosophy* as shall not invent Solutions, plausibly adapted to the *Phænomena*; but shew what is the real Fact, or Truth, in Nature^s.

Theories are
endless, but
Truth simple
and one.

3. 'Tis easy to perceive, that both they who assert the *Rotation*, and they who assert the *Stability of the Earth*, plead and produce *Phænomena* on both sides, with almost equal uncertainty. But the Author of the new *Astronomical System* of our time^t, who makes the *Sun* the centre of the secondary movement; and the *Earth* the centre of the primary; as if the *Planets* perform'd their *Revolutions* round the *Sun* (which some of the Ancients suspected of *Mercury* and *Venus*) would have excellently solved the difficulty, had he verified and confirmed the supposition^v. And we make no question but other *Constructions* and *Theories* of like kind, may be invented by men of a sharp and subtle genius; but the Persons who offer us such *Theories*, are not greatly concerned, whether they be perfectly true; and only suppose them for the convenience of calculation, and the forming of *Astronomical Tables*^w. Our Design, therefore, differs greatly from theirs; as tending not to the discovery of *Theories*, and real Solutions, which may be various and numerous; but the truth of things, which is simple and one: And to this discovery of Truth, the way is open'd by a genuine and pure *History of Phænomena*; but block'd up by one that is perverted and infected with Opinions.

The Enquiry
to be founded
on the immu-
table Laws
of Nature.

4. We must, however, openly profess, that our hope of discovering the truth, with regard to the *Celestial Bodies*, depends not solely upon such a *History*, raised after our own manner; but much more upon the observation of the common *Properties*, or the *Passions* and *Appetites of the matter of both Globes*. For as to the Separation that is supposed betwixt the *æthereal and sublunary Bodies*, it seems to us no more than a Fiction, and a degree of Superstition, mix'd with Rashness: For it is certain, that numerous Effects,

^s Doubtless this is a just and worthy End of the Enquiry: But what true steps have been taken towards this End; and how far we are at present from it, may deserve Consideration.

^t Viz. Tycho Brahe.

^v Was not this Supposition thought to be well verified, and confirmed, to many in its Time?

^w This seems rather a candid Construction of the Author, than the Intention of the Theorists; who generally desire the World should take their Solutions for true Discoveries. See hereafter, Sect. 1. p.

Effects, as *expansion, contraction, impression, yielding, collection, attraction, repulsion, assimilation, union*, and the like, have place, not only here upon the surface; but also in the bowels of the Earth, and regions of the Heavens². And no more faithful guide can be used or consulted, than these *properties of matter*, to conduct the understanding to the depths of the Earth, which are absolutely not seen at all, and to the sublime regions of the Heavens, which are generally seen, but falsely; on account of their great *Distance*, the *refraction of the Air*, the *imperfection of Glasses*, &c. The Ancients, therefore, excellently represented *Proteus* as capable of various shapes, and a most extraordinary Prophet, who knew all things, both the past, the future, and the Secrets of the present: For he who knows the *universal properties of Matter*, and by that means understands what may be, cannot but know what has been, is, and shall be the general state and issue of things³. Our chiefest hope and dependance in the consideration of the *Celestial Bodies*, is therefore placed in *physical Reasons*; tho not such as are commonly so call'd; but those *Laws*, with regard to the *Appetites of Matter*, which no diversity of place or region can abolish, break thro', disturb, or alter⁴.

5. We would not, however, on this account, have Mens Diligence at all slacken'd, in observing and recording the Phænomena of the celestial Bodies; for when a larger stock of these shall be procured, every thing afterwards will be the readier and better establish'd. And here we cannot but congratulate Mankind upon the care, industry and alacrity of certain Artificers, and Men of Letters; who have lately attempted a new intercourse or traffick with the celestial Bodies, by the means of *Telescopes*, and *optical Instruments*; as it were, by so many boats and ships in the way of Navigation⁵. This is an attempt, which we judge extremely noble, and worthy of Mankind; both in its beginning and end: the rather, because the observers are no less commendable for their fidelity, than their enterprize; as having ingenuously and clearly laid down how each Particular appeared to themselves. All that remains, therefore, is only for them to persevere with great *Severity of Judgment*, and *change of Instruments*; *increasing the number of the evidence, or eye-witnesses*; and to try each particular over and over again, in different manners; and lastly to raise objections to themselves, and open and explain to others, all the *Objections that may be brought on the contrary side of the question, without despising even the slightest scruple*; lest it should happen to them, as it did to Democritus, in the case of the figs, which had a honey-taste; wherein the old Woman proved wiser than the Philosopher:

An Exhortation to prosecute Telescopical Observations, &c.

² On this seems founded Sir Isaac Newton's third *Regula Philosophandi*; viz. That those Qualities of Bodies which are incapable of Augmentation and Diminution, and hold true in all the Bodies whereon Experiments may be made, ought to pass for general Qualities, residing in all Bodies indifferently. See his *Principia*, Lib. III. in init. See also hereafter, Sect. I. 1.

³ See an Attempt towards enumerating these *universal properties of Matter* in the *Sylva Sylvarum*; under the Article CHARACTERS OF MATTER.

⁴ Such as *Resistance, Gravity, Impenetrability*, &c.

⁵ How far Telescopes and other optical Instruments are improvable to the purposes of Astronomy, has not, perhaps, been hitherto consider'd, especially Sir Isaac Newton's *Reflecting Telescope*, with regard to the *Metal* and the *Structure*.

For a mighty slender and ridiculous Error may be the cause of great and wonderful Speculations^b.

Three Particulars to be regarded in a History of the Heavens; viz.

(1.)
The End.

(2.)
The Matter.

And (3.) The Manner.

6. In order to lay the foundation for a *pure and genuine History of the Celestial Bodies*, we will (1.) propose certain *capital philosophical Queries*; annexing thereto such *Uses*, as may probably be drawn from a consideration of the *Celestial Phenomena*: And this to shew the scope of such a *History* as we propose; that they who would assist in its compilation, may perceive its tendency, and all along bear in mind the *Questions*; whereby they may be directed to procure such a *History* as shall serve to determine these *Questions*; and afford other the like fruits and uses for the service of Mankind. The *Questions* we mean are such, as, according to the proper office of *History*, *enquire into the Facts of Nature*; and not into their *Causes*. (2.) In the next place, we shall distinctly shew wherein the *History of the Heavens* consists; what are its parts; what things are to be learn'd, or carefully fought after; what experiments to be made, and procur'd; and what observations to be used and considered: Thus laying down, as it were, certain *Heads of Induction*, or *Articles of Enquiry*, concerning the celestial Bodies^c. (3.) Lastly, we shall give *Directions*, how the things fought for should be consider'd, when obtain'd; how they are to be exhibited; and how recorded: Left, otherwise, the diligence used in the first Enquiry, should come to nothing; or, what is worse, the succeeding structure be built upon a weak and treacherous foundation^d.

S E C T. I.

PHILOSOPHICAL QUESTIONS *about the System of the World, to be clear'd up in the PARTICULAR HISTORY OF THE HEAVENS.*

The Reasons for proceeding here by an Induction of Questions.

I. **M**ANY will here suppose me raising the Ashes of Questions long since bury'd, to join them with others of later Date: But as the *Philosophy* we at present enjoy, about the *Heavens*, has no stability in it; as 'tis our fix'd Resolution to submit every thing to our new

^b Let it, therefore, be freely question'd even at this Day, whether the Earth has a *Diurnal and Annual Rotation*? Whether all the Stars are *solid Bodies*? Whether a *Comet* may occasion a *Deluge*? Whether we have a just *Theory of the Moon*? Whether the *Cause of the Tides* is justly assign'd? &c. And this, if it were only to procure more rigid and perfect *Demonstrations*: For these things are not, perhaps, so perfectly settled, as necessarily to exclude all modest, and scientific Doubting.

^c After the same manner, perhaps, as the Author's particular Enquiries into *Winds, Life and Death*, &c. are conducted.

^d Here are three Parts proposed, but only the first is prosecuted, and that imperfectly, as mention'd in the *Preface*. 'Tis pity the other two were not finished: For, the Astronomy has been strenuously cultivated since the Author's Time; yet the manner of Treatment here laid down, has not been sufficiently observed.

new Test of *Examination*, and genuine *Induction* ²; and as, perhaps, if any *Questions* were left untouch'd, so much the less pains and diligence would be employ'd in the *History*: because it might seem needless to enquire into things, whereof no *QUESTION* has been started; we find it necessary to take in all the *QUESTIONS*, which the Nature of the thing holds out to us. Besides, we are the more willing to admit of *Questions* here; as being less certain of their *Decision*, by our method; and not seeing clearly into the Issue^f.

2. Let the first *QUESTION* therefore be this, *IS THERE ANY SYSTEM?* Or, *Is the Universe spherical in its whole, and having its proper centre; or do the particular Globes of the Earth and Stars, lie scattered, and adhering each to its own seat, without any System, or common Centre?* Question (1.)
Whether there be any System?
The Opinions for.

The Schools of *Democritus* and *Epicurus* boasted, that their *Founders* had broke down the walls of the *World*; but this was no exact consequence of their *Doctrine*: For as *Democritus* held Matter, or an infinite quantity of *Seeds*, finite in properties and powers, to be in a perpetual agitation; and by no means fixed from eternity; he was oblig'd, by the force of this *Tenet*, to maintain *Worlds* of various figures, subject to Rise and Destruction; some of them better, and some of them worse regulated, and put together; and also rough Draughts and imperfect *Essays* of worlds. But admitting all this, the portion of matter destin'd to form the *World* within our sight, might have a *spherical Figure*; since all his *Worlds* must necessarily be of some Figure. For tho there can be no middle in Infinity, yet a round Figure may subsist in the parts of Infinity, as well in a *World* as in a *Ball*.

3. The Opinion which destroys the existence of a System, is that of *Heraclides*, *Ephantus*, *Nicetas*, *Philolaus*, *Gilbert*, and all those, except *Copernicus*, who make the *Earth* a moving Planet. For, according to this Opinion, the *Planets*, and all the numberless fixed Stars, both visible and invisible, have each its own Sphere and primary *Form*, thro the vast expanse of the *Heavens*, where they are sprinkled like *Islands* in the *Ocean*, and revolve not about a common Centre, but each in its own Orbit; some simply, and others with a small progressive motion of their Centres. What appears most exceptionable in this *Opinion*, is, that it takes away rest or immobility from Nature: For it should seem, that as there are revolving

^e As laid down in the *Novum Organum*.

^f The Author here appears to intimate some Distrust of the Method of his *Novum Organum*, in deducing the strict *Philosophical History* of the *Heavens*; I suppose on account of the Difficulty, or apparent Impossibility of making the proper Experiments upon the *Celestial Bodies*, and procuring *Crucial Instances*. And, perhaps, more Caution is here required, than some of the modern mathematical, and mechanical Philosophers have used: For what certainty is there, that, because all Bodies gravitate here on Earth, therefore the Stars and Sun must gravitate, after the same manner, in the *Heavens*; before 'tis proved, that the Stars and Sun are more than Flame? 'Tis true, there are other ways of coming at the Discovery, as Sir *Isaac Newton* has shown: But this particular *Induction* seems of itself too hastily made; and may deserve more *Intermediates*, if procurable, to render it perfectly safe and conclusive. See Sir *Isaac Newton's* third *Regula Philosophandi*, as illustrated at the beginning of the third Book of his *Principia*. See also above, Sect. IV. and compare the whole with the Second Part of the *Novum Organum*.

Bodies in the Universe, that is, Bodies carried with an infinite, and perpetual Motion; so, on the contrary, there should be some Body at rest; a middle Nature ^s betwixt the two, being that of Bodies in rectilinear Motion.

The leading Questions that determine it.

4. But this Question, *Whether there be a System or not*, may receive a determination from a decision of these points; viz. (1.) *Whether the Earth move, or stand still*^b. (2.) *Whether the substance of the fixed STARS be of a SOLID or FLAMY Nature*ⁱ. And, (3.) *Whether the interstellar spaces be corporeal, or empty of Matter*^k. For, 1. If the *Earth stands still*, and the *Heavens revolve*, with a diurnal Motion, then doubtless, there is a *System*^l. But if the *Earth revolve*, it is not thence perfectly shewn, that there is no *System*; because there may be another centre of the *System*, suppose the *Sun*^m. 2. If only the *Globe of the Earth* be a dense and solid Body, the matter of the *Universe* may seem to come together, and be condensed at the Centreⁿ. But if the *Moon*, or other of the *Planets*, be found to consist of a dense and solid Matter; then dense Bodies should seem not to collect to any Centre; unless dispersedly, and, as it were, fortuitously. 3. Lastly, If the *interstellar Spaces* be a *Vacuum*, then each *Sphere* will have first finer *Effluvia*, and afterwards a *Vacuum* about it; but if those *Spaces* are fill'd with Matter, then there will seem to be a collection of the denser Bodies in the middle^o; whilst the rarer are thrown to the surface^p.

The Use of coupling Questions together.

5. 'Tis of great use in the *Sciences* to understand the *coupling of Questions*; because some of them contain *History*, or matter of *Induction*, for Decisions; and some of them do not.

6. Sup-

^s The later Discoveries, so far as they go, seem rather to shew that there is no such thing as absolute Rest in Nature; unless we allow the fixed Stars to be at rest: But whether the whole visible System of things be at relative Rest, or in uniform rectilinear Motion, through an infinite *Expansum*, seems not satisfactorily determined. See Sir Isaac Newton's *Principia*, Lib. III. Prop. XI, XIV, &c.

^b Strong Arguments are produced by the Moderns, both for the Diurnal and Annual Motion of the *Earth*; but perhaps they still require to be verified. Thus the rising of the equatorial Parts, and the sinking of the polar, if well confirm'd by Experience, may prove a *Crucial Instance* for the Diurnal Motion; as the exact Determination of the Parallax of the fixed Stars, may, perhaps a Demonstration of the *Annual*. See the Attempt of Dr. Hook to prove the Motion of the *Earth* by Observations: Which has also been attempted since by others, but without Success. See Sir Isaac Newton's *Principia*, Lib. III. Prop. XX.

ⁱ This Point still seems to remain conjectural.

^k They appear, by Sir Isaac Newton's *Experiments and Calculations*, neither an absolute *Vacuum*, nor considerably charged with Matter. See the *Principia*, Lib. III. Prop. VI.

^l And has the *Earth*, or the Centre thereof, for its Centre.

^m Which comes nearly up to the Case lately discover'd by Sir Isaac Newton.

ⁿ See Sir Isaac Newton's *Principia*, Lib. III. Prop. XX. p. 386.

^o See again the *Principia*, Prop. XX, &c.

^p The present Discoveries in *Astronomy* scarce reach beyond that commonly called the *Solar System*; including the *Earth*, *Moon*, *Planets*, and *Comets*: Which appear to make a *System*, in the Sense of the Author; unless we require the utmost Precision; the common Centre of Gravity of the *Earth*, *Sun*, and all the *Planets* and *Comets*, being its Centre, and not differing much from the Centre of the *Sun*. See Sir Isaac Newton's *Principia*, Lib. III. Prop. XII. Corol. and Prop. XIV.

6. Supposing a *System*; the next QUESTION will be, WHAT IS THE CENTRE OF THE SYSTEM?

For if any one of the *Globes* must be in the place of a Centre, there are two principal ones which bid fair for this purpose; viz. the *Earth* and *Sun*. The *human Sight* and *inveterate Opinion* are on the side of the *Earth* in this Question: But the greatest Reason here is, that as all dense Bodies come into a little space, but rare ones diffuse themselves wider; it should seem to follow, that Matter must contract itself about the middle part of the World, as the Area of a Circle contracts itself to its Centre: This being, as it were, the proper and only Seat of dense Bodies.

(2.)
What is the
Centre of the
System?
The Argu-
ments for the
Earth.

7. On the other side; it makes for the *Sun*, that the thing which has the greatest efficacy in the *System*, should have the chiefest place assigned it; so as to act commodiously, and diffuse itself thro' the whole: But as the *Sun* appears to vivify, and animates the World, by imparting its Heat and Light thereto; it should seem very justly and regularly placed in the middle of the World.

The Argu-
ment for the
Sun.

8. Another Argument on the same side is, that the *Sun* manifestly has its Attendants or *Satellites*; viz. *Venus* and *Mercury*, and, according to the Opinion of *Tycho*, all the other *Planets*; whence the *Sun* really seems to be the Centre, or, in some respects, to perform the Office thereof; and thus, consequently, comes the nearer to being the Centre of the whole; according to the Opinion of *Copernicus*.

9. But there are many and great Inconveniencies found in the *Copernican System*: For (1.) It must be accounted a great one to load the *Earth* with three different Motions. (2.) It likewise seems unwarrantable to separate the *Sun* from the Choir of the *Planets*; wherewith it has so many Properties in common. (3.) To introduce so much immobility into Nature, by supposing the *Sun* and *fixed Stars* immoveable; whilst they are, of all others, the most lucid and shining Bodies. (4.) To make the *Moon* adhere to the *Earth*, as it were in an *Epicycle*; with other Particulars of like kind; which seem feign'd, or only suppos'd in Nature, merely for the sake of Calculation.

Inconveni-
encies in the
Copernican
System.

10. But if the *Motion of the Earth* be allow'd; it seems juster, that there should be no *System* at all; or that the *Celestial Globes* are sprinkled indifferently up and down the Heavens, rather than that there should be a *System*.

The Earth's
Motion urged
against a
System.

* This has a great Agreement with the *Inductive Enquiry* of Sir *Isaac Newton* upon the same Subject. See *Princip. Lib. III. Prop. XII. and XIII.*

* It may deserve a particular Regard, that Mathematicians, when they apply to Astronomy, or other Branches of Physicks, are apt to put off neat Solutions of Phenomena for Demonstrations; especially if such Solutions afford easier and exacter Methods of Calculation, so as to make all come right, as they phrase it. Thus, perhaps, the stress of the Arguments at present in use, for proving the truth of the *Copernican System*, lies chiefly in the Concinity, and Precision, which that System affords in Calculation, and the full Solution of all the Phenomena of the celestial Bodies: Whilst, at the same time, that System may possibly be false; tho' these Calculations prove exact, and the Solutions adequate. This treacherous Faculty of the Mind should be carefully watch'd. See the *Novum Organum*, Part I. Sect. 11. and 111.

System with the Sun for its Centre¹. And this Opinion was chiefly receiv'd and approv'd by Antiquity, and former Ages: For the *Opinion of the Earth's Motion is no new one, but borrow'd from the Ancients*²; tho it be quite new to make the Sun the Centre of the World, and immoveable: And of this Copernicus is the original Author.

Question

(3.)

Whether the fixed Stars are not placed at different Altitudes?

11. The next QUESTION concerns the *Dimensions of the System*; tho not so as to take any perfect measure thereof; but only to ascertain, *Whether the starry Heavens be like one continued Region, Orb, or Sphere; or whether the fixed Stars are some of them immensely higher than others?* For 'tis impossible they should be exactly all of the same height: As the Stars are, doubtless, situate, not like Spots upon a Plane, that have only a Dimension in Surface; but as entire, large, and deep Globes. And as they are form'd of such different Magnitudes, some of them must necessarily bulge out either upwards or downwards, more than others; and then one Surface cannot possibly take them all in, either on their upper or lower Parts. And if this be the Case in the parts of the *fixed Stars*, it would be rash to assert, that the Stars, in their entire Body, are not some of them higher than others. But allowing this; yet there may be supposed a certain definite, tho considerable, thickness of the Region called the *Sphere of the fixed Stars*; which may, in some measure, terminate those prominences and degrees of height: For we see in the Apogees and Perigees of the Planets; each of their Orbits has a remarkable depth, wherein they ascend and descend³. But the meaning of the QUESTION is only, *Whether some fixed Stars are higher than others; and, as it were, in different Orbs, like the Planets?*

The Answer upon Supposition of the Earth's Stability.

12. And this QUESTION also has a relation to that other of the *Motion or Rest of the Earth*: For if the Stars have a diurnal Rotation, round the Earth; and all of them move with an equal Velocity; and as the Planets, according to their situation higher or lower, differ in velocity and slowness of Motion; it seems probable, that the *fixed Stars*, being equal in the velocity of their Motion, are also placed in one and the same Region of Æther; the depth whereof being suppos'd very considerable, may, yet, not be so great as to cause a difference in their Velocity: But all things may seem to move together thro that whole Region, as if link'd and bound to one another by a natural Sympathy: Or, at least, the difference may be too small to become visible to us, by reason of the distance.

Upon the Supposition of the Earth's Motion.

13. But if the Earth move, the Stars may either stand still, according to the Opinion of Copernicus; or what seems much more probable, they may, as Gilbert first advanced, each of them have a Rotation about its own Axis, in its own place, without any motion of their Centres; in the same

¹ It is not to be expected, that this Argument should have any Weight, at present. See Sir Isaac Newton's Princip. Lib. III.

² Nicetas of Syracuse is said to be the first who discover'd the diurnal Motion of the Earth; and Philolaus the first that discover'd its annual Motion about the Sun. See Cicero. Quæst. Tuscul. Lib. II. ad finem, and Plutarch. Lib. III. De Placit. Philosoph. Cap. 11. & 13. See also, Laert. Lib. VIII. Cap. 85. and Archimed. Arenar. in init.

³ Viz. the Obliquity of the Planets Orbits.

same manner as the *Earth* itself, if its diurnal Motion were freed from those two additional ones assigned by *Copernicus*. But which ever be the Case, the fixed Stars may be some of them higher than others; so long as they escape our sight.

14. The Fourth QUESTION may be concerning the Connexion of the Question System. This QUESTION admits of three Cases; viz. (1.) Vacuity; (2.) Contiguity; and (3.) Continuity. Let it, therefore, first be enquired, *Whether the interstellar Spaces are empty of Matter.* Gilbert is explicit in the Affirmative; and so seem to be some of the Ancients, who conceived, that the Stars were diffused without any System; but especially such of them as asserted compactness of Body in the Stars. The whole of the Opinion is, (1.) that both the Stars and *Earth* consist of a dense and solid Matter; (2.) that they are immediately surrounded with a certain kind of Bodies, somewhat of the same nature with the Globes themselves, respectively; tho' more imperfect, languid, and attenuated; being no other than the Effluvia and Exhalations of the Globes themselves, such as are Vapours, and the Air, with respect to the *Earth*; (3.) that these Effluvia did not reach to any great distance, around each Globe; and (4.) that all the other immense intermediate Spaces were void of Matter.

15. This Opinion seems countenanced from hence, that the Bodies of the fixed Stars are visible to an immense distance: For if that entire Space, thro' which we see them, were fill'd, especially with such Bodies as must needs be very unequal in point of Rarity and Density, the Rays of Light would be so refracted, as never to arrive at our Eyes: Whereas, if much the greatest part of that Space be empty; the Light, 'tis probable, will come the easier to us. However, the Determination of this Question will, in good measure, depend upon what we shall soon propose about the substance of the Stars: For if their substance be solid; it should seem, that Nature has busied herself with little more than the Globes themselves, and their Atmospheres; and left the intermediate Spaces desolate, and forsaken: Whence it might appear probable, that all the Globes are denser about their centres, and rarer towards their surfaces; so that their Atmospheres, at length, ceasing, they terminate in Vacuity.

16. On

* This approaches nearest to the modern Opinion, which supposes the fixed Stars to be every one of them a Sun, and the Centre of a System like the solar. This indeed requires an immense quantity of Space; but Space is said, in its nature, to be infinite. Such kind of Excursions are highly pleasing; and gratify the Mind, which delights in ranging at large, thro' infinite Regions; but should not sober Philosophy here use the Rein? See Sir Isaac Newton's Princip. Lib. III. Schol. General. in init.

* There are several curious Observations, and sublime Speculations, relating to this Question, in the Philosophical Transactions. See particularly N^o 364, pag. 22. See also, Sir Isaac Newton's Princip. Lib. III. Prop. XIV, &c. and the Queries at the end of his Opticks.

* See below, SECT II.

† Is not this the Case in the *Earth*, and all the Planets and Comets? See Newton, Princip. Lib. III. Prop. XX, &c.

‡ Sir Isaac Newton has prosecuted this Enquiry by a variety of accurate Experiments, made with Pendulums, and falling Bodies, in different Mediums. The Result whereof, so far as relates to the present Purpose, is, (1.) that the Resistances of equal glo-

Against.

16. On the contrary; if the *fixed Stars* be of a rarified and flaming Substance^a, 'twill appear, that the nature of *Rarity* is not only a decrease of *Density*, but, of itself, a powerful and *primary thing*; no less than the nature of *Solidity*: And that it takes place both in the *Air*, the *Æther*, and the *Stars* themselves, so as to leave no necessity for a *Vacuum*.

Whether there
be any Va-
cuum?

17. The present *Question* also concerning a *Vacuum in the interstellar Spaces*, has a dependance upon that other belonging to the Principles of *Natural Philosophy*; viz. Whether there be any *Vacuum*? But this *Question* must be put with some distinction: For 'tis one thing to deny a *simple*, and another to deny a *collective Vacuity*; since the reasons producible for the existence of an *interspersed Vacuity* (admitting the Relaxation or Rarification of Bodies) are stronger than those which make for a *collective Vacuum*, in the vaster Spaces. And this distinction was not only perceived by *Hero*, a subtle mechanical Philosopher; but also by *Leucippus* and *Democritus*, the Introducers of a *Vacuum*, which *Aristotle* combats with certain Subtilties and turns of Wit. But the two above-mention'd acute and famous Philosophers allow an *interspers'd Vacuity*; so as to destroy the Notion of a *collective one*: For, in the Opinion of *Democritus*, *Vacuity* is so circumscribed, that Bodies cannot be drawn asunder, any more than they can be compell'd together, beyond certain Bounds. And tho this is nowhere expressly asserted in those *Writings* we have remaining of *Democritus*^b; yet he seems to say as much, by *making Bodies infinite, as well as Space*: Which he does for this Reason, that Bodies otherwise, would never hold together; viz. if Space were infinite, and Bodies finite: And, therefore, if Matter be equally infinite with Space, *Vacuity* is necessarily bound up within certain Limits^c: Which seems to be his true Opinion, fairly explain'd; so as to set certain Boundaries to the expansion of Bodies, by the *Vacuity* wherewith they are coupled; without allowing any pure or *simple Vacuity*, uncontained in Matter^d.

18. But

globular Bodies, moving with equal Velocity, in *Air*, *Water*, and *Quicksilver*, are as the Densities of the Fluids; (2.) that tho the *Water*, *Air*, or *Quicksilver*, were rarified by an infinite Subdivision of their Parts, so as to become Mediums infinitely fluid; they would still resist, after the same manner as before: Because this Resistance proceeds from the inactivity of Matter; which is essential to Bodies, and constantly proportion'd to their quantity of Matter. For, tho to divide the parts of a Fluid, may lessen that Resistance which proceeds from the Friction and Tenacity of the Parts; yet the quantity of Matter is not diminished by such Division: And whilst the quantity of Matter remains the same, so will its inactivity, to which the Resistance here understood, is ever proportional. (3.) That, therefore, to diminish this Resistance, the quantity of Matter must be diminished in the Spaces thro which the Bodies move: Consequently, the *interstellar Regions*, thro which the Globes of the Planets and Comets constantly revolve in all directions, with great freedom, are not filled with any *corporeal Fluid*; excepting only for some highly rarified Vapours, and the *Rays of Light* transmitted thro those Regions. See *Princip. Lib. II. Schol. Gen.* and *Lib. III. Prop. XL.* &c.

^a See hereafter, *SECT. II.* 30.

^b See *Morhof. Polyhist.* Tom. II. Lib. II. Cap. VII. p. 179, &c.

^c This is attempting to account for Cohesion in Bodies; which put into a *Vacuum*, should fall to pieces, if the Position were true.

^d Sir *Isaac Newton* proves, that all Spaces are not equally fill'd; because, otherwise, the *specific Gravity* of the Fluid that possesses the Region of the *Air* would be equal to that

18. But if there be no *Vacuum*, after the manner of a *Solution of Continuity*; yet so great a diversity in the Parts and Regions of the *System of Bodies*, that they seem to be, as it were, of different Nations, and Countries; there hence arises a second *Question*, with regard to the connexion of the *System*; viz. *Whether pure Æther be one uniform or continued Fluid; or whether it consists of many contiguous Parts?* By a *contiguous Body* we here mean a Body that lies upon another, without mixing with it. Nor do we understand such a *hard Flooring* as the common Astronomers have feign'd; but such an one as may admit of flowing; as when Water floats on Quicksilver, Oil on Water, and Air on Oil. For no doubt, but in that immense tract of *Æther*, there are very considerable differences in point of Rarity and Density; besides many others^a: But this may be the Case, whether the parts of the *Æther* are *continuous* or *contiguous*. For 'tis manifest, that even in the *Sea* itself, the Water on the top is not of the same Taste and Consistence with that at the bottom^d. And in the *Atmosphere* there is a great difference betwixt the *Air* adjacent to the Earth, and that high above it; and yet there is one entire and constant Flow in the *Atmosphere*^e. The *Question* therefore comes to this; viz. *Whether the differences in the tract of Æther insinuate themselves gradually, and by a continued Flux; or whether they are constituted, and distributed, at certain considerable distances, or limits, where Bodies meet, that will not mix*; as here below the Air floats on Water^b. And to take the thing simply, that whole, pure, and limpid Body, wherein the Globes of the *Earth* and *Planets* float as in an immense Ocean, which in its dimension, and the space it possesses, almost infinitely exceeds the dimensions of those Globes, seems to be *one undivided and perfectly united thing*ⁱ.

Whether the Æther be continuous or contiguous?

The Procedure of Nature in different degrees of Change from one Body to another.

19. But whoever carefully observes *Nature*, will find her Method is to proceed by degrees, for certain spaces; and then, of a sudden, to advance by starts; and to use this procedure alternately: Otherwise, to con-

that of *Quicksilver*, *Gold*, or any other the densest Bodies; which, therefore, could not descend in Air: For no Bodies can descend in such Fluids as are not specifically lighter than the Bodies. See *Princip. Lib. III. Prop. VI.* And, as the same Philosopher shews, there is no *absolute Vacuity* in the *interstellar Regions*, on account of some subtle and highly rarified Vapour, the Rays of Light, and some small Resistance, which the several celestial Bodies sustain in their Motions, his Doctrine on this Head seems somewhat agreeable to that of *Democritus*, as here explained; especially if a *subtile elastic Fluid*, or *Spirit*, be supposed the Cause of *Gravity*, or *Cohesion*, in Bodies. See *Princip. Lib. III. Schol. Gen. ad finem.* See also the *Queries* at the end of the same Author's *Opticks*.

^c Perhaps the finer parts of the *Atmospheres* of the *Planets* and *Comets* may go off into the Region of *Æther*, if there be any such Fluid, as they pass along it, and thus, by degrees, impregnate that immense Ocean, and render it a kind of compound Tincture, as the *Earth's Atmosphere* more manifestly is. See *Sir Isaac Newton's Conjecture* as to the Use of the *Comets*; *Princip. Lib. III. Prop. XLI. pag. 472, 473.* Mr. Boyle's *Memoirs for a General History of the Air*. Dr. Hook's *Micrographia*, &c.

^d See Mr. Boyle on the Saltness of the Sea, &c.

^e See Mr. Boyle's *Memoirs for a General History of the Air*.

^f See the Piece last cited.

^g Upon what experimental Foundation does this Notion of *Æther* stand, as of an actual Fluid existing in the *interstellar Regions*?

sider it closely, there could be no *Fabric of things*; no organical Conformation, if she constantly proceeded by *insensible degrees*. This gradual Procedure, therefore, may take place in the intermundane Spaces, and not in the World itself; the Structure whereof requires very different things to be separated, or shut up, from, and yet approach one another. Hence, the *Air* immediately touches, and succeeds to, very different Bodies from itself; viz. the Earth and Water; without going in a scale, first from *Earth* to *Mud*, and then from *Mud* to *Water*, from *Water* to *Vapour*, or Clouds, and, lastly, to *Air*; but Nature here jumps at once to *Air*, without any intermediate degree^k.

The Heavens
divided into
three capital
Parts.

20. But the most observable and fundamental Division of all, in the Air and *Æther*, seems derivable from the *Nature*, which is more or less susceptible of a *stellar Nature*. Whence there seem to be three very remarkable kinds of *Regions* between the *Globe of the Earth*, and the utmost extent of the *Heavens*; viz. (1.) the *Tract of Air*; (2.) the *Tract of the planetary Heaven*^l; and (3.) the *Tract of the starry Heaven*. Now the *stellar Nature* does not exist in the *lower Tract*; but in the *middle one* it begins; and there comes together into a few particular *Globes*; and in the *upper* diffuses itself into a very large number of *Globes*; so that its top may seem to reach the entire *empyrean Heaven*.

The gradual
and starting
Procedure
used by turns
in the Heavens.

21. It must, however, be remember'd, according to what was just now mentioned, that Nature here uses this *gradual and starting Procedure* by turns, so as to make the *Confines* of the *first Region* communicate with the *second*; and those of the *second* with the *third*: For in the *higher Air*, after it begins to be purged of the *Earth's Effluvia*; and to be more rarified by the *Effluvia* of the celestial Bodies; it tries and endeavours to become *Flame*; as in the case of the *lower Comets*^m, which seem of a *middle nature*; between the consistent one of the Stars, and a more perishable one. Again, the Heavens about the Sun may seem to grow starry, and begin to pass into the nature of the *stellate Heaven*: For the *Spots* which have been accurately observed in the Sun, may possibly be certain *Rudiments of a starry Matter*ⁿ. But, in the Heavens, about *Jupiter*, the *Stars* appear in their perfection; tho, by reason of their smallness or distance, they are invisible to us, without the assistance of *Telescopes*^o. And again, at the greatest height of the *starry Heaven*, the *stellar Nature* seems to be more continu'd, and diffus'd; from those numberless twinklings or radiations of the *Æther*, among the *fixed Stars* that are number'd^p.

22. There

^k This appears a capital Observation for interpreting the Works of Nature.

^l Now commonly called the *Solar System*.

^m All the *Comets* are shewn by Sir *Isaac Newton* to be higher in the System than the Moon; and to revolve in long *Ellipses* about the Sun. See *Princip. Lib. III. Prop. XL.*

ⁿ See the several Observations upon these Spots of the Sun in the *Philosophical Transactions, French Memoirs, &c.* or a Summary of the whole in *Wolf. Element. Astronom. pag. 459, 460, &c.*

^o Are any *fixed Stars* certainly found so low in the System as *Jupiter*?

^p These Twinklings are thought, by Sir *Isaac Newton*, to proceed from the Refraction of our Eyes, and the tremulous Motion of the Air. See *Princip. Lib. III. pag. 467.* See also hereafter, *SECT. II.*

22. There is a fifth kind of Question regarding the situation of the Question parts of the System, or the Order of the Heavens. And whether there be a (5.) System, with the Sun for its Centre, or no System at all, so as to leave What is the Order of the Heavens? the celestial Bodies loose and straggling; or whether Astronomers shall hereafter discover any new System; the Enquiry will still remain, what Planet is nearest to, or farthest from, another; and, in like manner, what Planet has a greater, and what a less Elongation from the Earth or Sun.

23. If the System of the Ancients be admitted; there appears no reason Upon the System of the Ancients. for insisting strenuously upon the new Enquiry, about the four superior Regions; viz. that of the fixed Stars, and those of Saturn, Jupiter, and Mars: As their Order and Position have been agreed to by all Ages, without contradiction from any Phenomenon. Their respective Motions are also settled, and cause no Error in Calculation. But the Ancients, even upon their own System, had doubts about the Sun, Venus, Mercury, and the Moon; and the Moderns likewise have question'd, which was the higher Planet, Venus or Mercury. That Venus should be the higher is argued, because she moves somewhat slower; and that Mercury should be the higher, because he seems more ty'd to the Sun; whence 'tis conceived, he must be placed the nearest to him. But for the Moon, she was always placed nearest the Earth; tho there is some dispute about her approach to the Sun.

24. There is also another kind of Question regarding the Constitution of Whether the the System: For example, whether one Planet moves sometimes over and some- Planes of the times under another, by turns: Which seems demonstrated in the case of Planets do not intersect each other? Venus, from diligent Observations; whereby she has been found sometimes above, and sometimes below the Sun. And 'tis proper to enquire whether the Apogee of a lower Planet may not reach the Perigee of a higher; and thus produce an Interfection of Orbits.

25. The last Question, as to the situation of the parts of the System is this. Are there several different Centres in the System; and separate Revolutions round them? Especially, since not only the Earth has been made the Centre of the first Movement; and the Sun the Centre of the second; but also Jupiter is made the Centre of those lesser Planets, or Satellites, lately discovered by Galileo.

E 2

26. And

* But these Particulars are settled to greater Exactness by later Observations. See Sir Isaac Newton, Dr. Gregory, Wolsius, &c.

† See these Particulars adjusted in Sir Isaac Newton's Principia, Part III. De Systemate Mundi, and from thence by the later Writers of Astronomy; but particularly Wolsius in his Elementa Astronomia.

‡ How the Motions of the Planets are perform'd round the Sun, without clashing or interfering with each other, see exhibited in a single Theorem, by Wolsius, in his Elementa Astronomia, pag. 305, 306.

§ And which Sir Isaac Newton demonstrates, revolve about the Centre of Jupiter, with a force reciprocally as the Squares of their Distances from it. See Princip. Lib. III. Prop. 1. And the best Solutions of all the preceding Questions seem derivable from the same admirable Work; but those who have not a sufficient stock of Mathematicks to understand that Piece, may to good advantage consult Christ. Wolsii Elementa Astronomia; where all is explain'd in a much more familiar and entertaining, yet Geometrical Manner.

Recapitulation.

26. And thus there are five capital *Questions* which should be sifted with regard to the *System itself*; viz. (1.) *Whether there be a System?* (2.) *What is its Centre?* (3.) *What its Dimensions?* (4.) *What its Connexion?* And, (5.) *What its Order of Parts?* But for the external parts of the Heavens, and the *empyrean Heaven*, we raise no *Questions* about them: For of these things there is no *History* nor *Phænomena* extant; and therefore, what is to be known of them, must be had by *Consecution*, not by *Induction*^{*}. This Enquiry, therefore, must wait its proper time; and expect its *SUITABLE METHOD*. But for the *immaterial Heavens*, we had better trust them wholly to *Religion*: For what the *Platonists* of old, and *Patricius* of late (to shew themselves Divines in Philosophy) have said on this Head, is mix'd with manifest Superstition, Arrogance, and Phrensy, and, like the *Icons* and *Æons*, or *Dreams* and *Fictions* of *Valentinus*, bold and fruitless; so that we reject it all, as trifling, vain, and preposterous: For to canonize Folly, as in the *Apotheosis* of *Claudius* into a *Musbroom-God*, is intolerable: And to venerate Vanities is extreme Abomination; and the bane of the *Understanding*.

S E C T. II.

PHYSICAL QUESTIONS concerning the Substance of the CELESTIAL BODIES.

The Necessity
for uniting
Physicks and
Astronomy.

WE come next to the *Questions* regarding the *Substance of the heavenly Bodies*; into which, and the *Causes of their Motions*, 'tis the principal Office of *Philosophy*, to enquire. But *Astronomy* also undertakes to enquire into their *Motions*, with the *Properties* thereof; and both *Philosophy* and *Astronomy* into their *Influence* and *Powers*. There is, however, a Difference to be made betwixt *Astronomy* and *Philosophy*: *Astronomy* should be conceived to lay down such *Hypotheses* as best serve the Purposes of a ready and expeditious *Calculation*; but *Philosophy* such as nearly approach the Truth and Reality of *Nature*. Again, the *Hypotheses* of *Astronomy* may be subservient to their own Convenience, but should in no wise prejudice the *Truth of things*; and the *Determinations* of *Philosophy* should here be perfectly explicable upon the *Phænomena* of *Astronomy*.

* What kind of Intimation is this? The Method of enquiring by Induction is Known, and fully explained in the Author's *Novum Organum*: But what is the Method of Discovery by Consecution? Perhaps, 'tis meant, that when the Business of inductive Enquiry shall be carried its due length, in *Astronomy*; and the immense Regions of the fixed Stars be as well understood as the *Solar System*, at present; the Notion of an *empyrean Heaven* may, by *Consecution*, appear, to future Generations, a *Vanity*, or a *Fiction*; or else all that supposed Region be found full of *Worlds* and *Systems*, like the solar. But this may be launching too far.

onomy. But, at present, the direct contrary is the case; for the *Fictions of Astronomy* are introduced into, and have corrupted *Philosophy*; and the Speculations of *Philosophers* about the *celestial Bodies* please none but themselves; and in a manner run off from *Astronomy*; as regarding only the *Heavens in general*, without at all reaching to the particular *Phænomena* and their *Causes*. Therefore, as both these *Sciences*, in their present State, are but light and tottering things; their Foundations should, by all means, be stronger fix'd; and in such a manner, as if the two, which, by reason of the School Uses made of them, and the Narrowness of Mens Comprehensions, have, for so many Ages, been separated and disjoined, were but one and the same thing, to be wrought up together into a single Corps of Science, under the Title of *Philosophical Astronomy*.

2. Let the first QUESTION, therefore, be this. *Is the Substance of the celestial Bodies of a different nature from that of the terrestrial?* For the rash and disputatious Temper of *Aristotle*, has given us an imaginary *Heaven*, made of the *Quinta Essentia*, that is not subject to *Alteration*, or even to *Heat*. But to drop, for the present, speaking of the four Elements, which this *Quinta Essentia* supposes; it was certainly a very confident Attempt, entirely to cut off all relation betwixt the elementary and celestial Bodies; whilst two of the Elements, viz. *Air* and *Fire*, have so great an Agreement with *Æther*, and the *Stars*: But it was the practice of that Philosopher to abuse his own *Genius*, make himself *Work*, and affect Obscurities. There is, however, no doubt, that the Regions both below and above the *Moon*, together with the Bodies they contain, differ from one another in many and great respects: But 'tis no less certain, that the Bodies of both these Regions have numerous Properties, Tendencies, and Motions; in common; so that we should rather distinguish betwixt, than rend them asunder: as being, at the bottom, of the same nature.

3. As to that Opinion of their *Heterogeniety*, which makes the celestial Bodies eternal, and the terrestrial perishable; it seems fallacious on both sides: For the *Heavens* have not that *Constancy*, nor the *Earth* that *Mutability* which is coined by the Favourers of this Notion. Whoever would form a true judgment of the *Earth*, can only do it from such parts thereof as have been seen; but all the terrestrial Bodies hitherto observed by Men, have scarcely been dug, or thrown up, from a greater depth than that of three Miles from the *Surface*; which is nothing in comparison of the *Earth's* Semidiameter, and the whole Contents of the *Globe*: And therefore the internal parts of the *Earth* may, for any thing that has hitherto appeared, be as durable as the *Heavens*.

4. And if the *Earth* did suffer Changes at greater depths; the Consequences thereof must necessarily produce greater Accidents, than appear

Question (1.)

Whether the celestial Bodies are of the same Nature with the terrestrial?

That the terrestrial and celestial Bodies may differ in Properties, and not in Essence.

That the internal parts of the Earth may be as immutable as the Heavens.

And its Changes reach not below its more superficial Parts.

* Which the present Age has seen successfully promoted by Sir Isaac Newton.

† See his full Character in the following Piece, SUPPLEMENT X.

‡ Is this Position capable of a strict Inductive Proof? Or can any nearer Advances be made to the Discovery, than by Sir Isaac Newton's third Regula Philosophandi? See above, Sect. I. 2.

§ See Mr. Boyle, of the Subterranean Regions.

on the Surface: But in all the *Changes* we perceive towards the superficial parts, there is almost constantly some other manifest *Cause* of them derivable from above; as difference of the Seasons, Rains, Droughts, Heats, &c. so that the Earth of itself, and its own proper Force, seems to afford no *Cause* of any considerable Change. And allowing, what is probable, that not only the *celestial Bodies*, but also the *Earth*, acts upon the Regions of the *Air*; either by breathing out *Cold*, discharging *Winds*, or the like; yet all this Variety may happen in those Regions of the *Earth* which lie near the Surface; and where no one can doubt but there are numerous *Changes* and *Revolutions*.

That Earth-
quakes, &c.
happen only
near the Sur-
face.

5. But of all the *Phænomena* of the *Earth*; Earthquakes, and Accidents of the like kind, must be allowed to penetrate by far the deepest; as the Eruption of Water, the Eructation of Fire and Flames, Chafms, and falling in of the *Earth*, &c. and yet these do not happen at any great Depth; as most of them usually affect but some little space on the surface of the *Earth*, without spreading far: For the wider an *Earthquake*, or the like, should spread upon the *Earth's* Surface, the deeper its Origin must be conceived, and *vice versa*².

Earthquakes
in the Earth
set against
Comets in the
Heavens.

6. 'Tis true, there sometimes happen such *Earthquakes*, as shake very large and spacious *Countries*; tho these are not frequent, but extraordinary Cases; and may therefore be, pertinently, compared to the *Comets*, which also appear but seldom: For the business here is not to maintain the *Immutability* of the *Earth*; but only to shew there is no great difference betwixt the *Heavens* and the *Earth* in point of *Constancy* and *Change*.

That possibly
the internal
parts of the
Earth suffer
no Loss, and
want no Re-
pair.

7. And further; that the internal parts of the *Earth* are not more subject to Corruption than the *Heavens* themselves, may be argued from hence; that things usually decay and perish, where they may be recruited and renewed. For as *Showers* and other falling *Meteors*, which renew the face of the *Earth*, can, by no means, penetrate to its internal parts; which, nevertheless, maintain their bulk, and quantities; it should seem to follow, that nothing is there lost; as there is nothing at hand to repair any loss³.

8. Lastly,

² This, tho probable, may require to be better confirm'd; because the Force that was great at first, and exerted on the central Parts, might be suspected to diminish near the Surface; so as not there to produce any very considerable Effect.

³ This Conjecture may receive some Light from the Converse thereof, which is intimated by Sir *Isaac Newton* in his *Principia*, upon better grounds, perhaps, than he there expresses; viz. that as the Sea is absolutely necessary to the Constitution of the *Earth*, in order to afford a sufficient quantity of Vapour, which is raised by the Sun; and being either condensed into Clouds, falls back again in Rain, to water and supply the *Earth*, for the production of Vegetables; or else being condensed upon the cold tops of Mountains, runs down into Springs and Rivers; so, *Comets* seem necessary for supplying the Seas, and proper Moisture in the *Planets*; that what Liquors are there consumed in *Vegetation* and *Putrefaction*, and converted into dry *Earth*, may be seasonably recruited and made good, by the *Exhalations* and *Vapours* of the *Comets*. For all Vegetables wholly receive their Growth from Liquids; and afterwards turn, by *Putrefaction*, in great measure, to dry *Earth*. Whence the bulk of dry *Earth* is perpetually upon the increase, and Liquids, unless otherwise supplied, perpetually upon the decrease, so as to fail at last. *Princip.* Lib. III. pag. 473.

8. Lastly, the *Mutability* observed in the more *external parts of the Earth*, seems only *accidental*^b: For the thin outside *Crust*, which appears to reach but a few Miles downwards, and to contain the two wonderful *Laboratories of Plants and Minerals*, would receive little Variety, much less produce such beautiful and elaborate Works, without feeling the Influences and perpetual Animation of the *celestial Bodies*. To imagine that the heat and active powers of the *Sun*, and other celestial Bodies, may strike quite thro the entire Body of the terrestrial Globe, must be a strange degree of Superstition and Enthusiasm; whilst it plainly appears how small an Object is sufficient to check and restrain them.

9. No sure Argument for the *immutability of the Heavens*, can be drawn from hence; that the Effects thereof are not visible: for the Sight is frustrated as well by Distance, excess, or defect of *Light*, as the subtilty or minuteness of the Object: So an Eye placed in the *Moon* could not discover the changes which happen here upon the *Earth's Surface*; such as *Inundations, Earthquakes*, and the like; for these are but as Atoms at so great a distance. Nor is it safe, because the *interstellar Heaven* appears transparent, and the *fixed Stars*, on clear Nights, appear the same, both in Number and Complexion, to pronounce from thence, that the entire body of the *Æther* is clear, pure, and unchangeable: For the *Air* receives numberless varieties of *Heat, Cold, Odours, and Mixtures*, of all kinds, in subtile Vapours, and Effluvia; and yet appears transparent. So likewise the clear face of the Heavens is no Proof of their *Purity, Homogeneity, and Incorruptibility*. For if those huge masses of *Clouds*, which sometimes overspread the *Heavens*, and, by reason of their nearness to us, hide the *Sun* and *Stars* from our sight, were to float in the higher parts of the *Heavens*; they would not at all fully or obscure the clearness thereof: As themselves could neither be seen, on account of their distance, nor darken the *Stars*, on account of the smallness of their Body, with regard to the Body of the *Stars* so near them^c. Even the Body of the *Moon* does not alter the face of the *Heavens*, except on that half which receives the *Sun's Light*; so that, were it not for that Light, even such a vast Body as the *Moon* would be perfectly hid from us.

10. On the other hand, it plainly appears from those masses of Bodies, which by their bulk and size supply their want of nearness; and which, by means of their luminous Matter, briskly strike the Eye; that there are strange and extraordinary *Changes in the Heavens*. Thus the *higher Comets*, seen in the form of *Stars*, without their Tails, are not only by the Doctrine of the *Parallax*, demonstrated to be above the *Moon*^d, but have also been found to preserve their own Figures, Stations, and Constancy, for some time, like the fixed *Stars*; without wandering in the manner of Planets. And such *Comets* have more than once appeared in our Time:

First

^b That is owing to Causes from without.

^c Compare this with Sir Isaac Newton's Doctrine of the Tails of Comets. *Princip.* Lib. III. pag. 466, 467, 468, &c.

^d See Newton. *Princip.* Lib. III. Lem. IV.

First in *Cassiopeia*, and again in *Ophiucus* ^e. That this Constancy of the Comets should proceed from their waiting upon some certain Star, which was the Notion of *Aristotle*, has been long since exploded; with a reflexion upon the Procedure of that Philosopher, who durst venture to raise *Hypotheses* upon such superficial Considerations, and tie the Comets to single Stars; and the *Milky Way* to *Constellations*.

The Appearance of new Stars.

11. Nor does this alteration in the celestial Regions hold only of those Stars which may seem of a perishable nature; but also of those that are fix'd and constant: For the Ancients, in the Case of the new Star of *Hipparchus*, make mention of an *Appearance*, but none of a *Disappearance*: And a new Star lately began to appear in the Breast of *Cygnus*, which has now continued for the space of twelve years; a term much greater than Men commonly allow to the Comets: And this without any diminution or tendency to a *Disappearance* ^f.

Changes in the Sun.

12. Nor is it absolutely true, that the ancient Stars remain perfectly the same, and unchangeable; whilst only those of late date are subject to alteration: For, not to mention the *Arcadian Fables* about the first appearance of the *Moon*; there are in *History*, and the faithful *Records* of things, certain examples to our purpose. The *Sun* has three several times changed his Face, for many days together; whilst the Air remained clear and serene, without any *Eclipse*, or interposition of *Clouds*. At one of these times his Light was little; and at the two others brownish. This happen'd in the year 790, for seventeen days together; again, in the time of *Justinian*, for half a year; and, after the Death of *Julius Caesar*, for several days successively. *Virgil* bears a remarkable Testimony of the Darkeness that happen'd upon the Death of *Julius Caesar* ^g.

Alterations in Venus.

13. The Account of *Varro*, a Man extremely well vers'd in Antiquity, found in *St. Austin*, concerning the Planet *Venus*, might seem incredible; had not the like thing happen'd again in the year 1578: For *Varro* says, that in the time of King *Ogyges*, *Venus* changed both her Colour, her Magnitude, and her Figure: But in our own time, there was, for a whole year together, a most remarkable alteration in the same Planet; when she appear'd of an unusual Magnitude, and Splendor; exceeded even *Mars* in redness; and frequently changed her figure ^h. And that ancient Star which *Aristotle* declares himself to have seen in *Coxa caniculæ*, bearded somewhat like a Comet; and vibrating its Beard, especially upon a transient view ⁱ; now seems changed, and to have lost its Beard: For it no where appears at present. We may add, that numerous alterations in the celestial Bodies, but

Disappearance of Stars.

^e See the Author last mention'd. *Princip. Lib. III. pag. 455, &c.* and *Wolf. Elem. Astron. pag. 594.*

^f See *Wolffii Elementa Astronomia, pag. 594.*

^g Ille etiam extincto miseratus Casare Romam,
Cum caput obscura nitidum ferrugine texit.

^h See *Wolffii Elementa Astronomia, p. 473, 474.*

ⁱ Compare this with *Dr. Hook's Discourse of Comets*, *Sir Isaac Newton's Princip. Lib. III. p. 467.* and with *Wolffius's Doctrine of Comets. Element. Astronom. p. 595, &c.*

but especially in the *smaller Stars*, may easily be lost to us; or, thro neglect, and want of Curiosity, escape our Observation^k.

14. If any one should attribute these apparent *Changes* to the interposition of Vapours, and the disposition of the Medium; we answer, That such *Changes* as are constantly, equally, and for a long time together, found in the Body of a *Star*, and revolve along with it, must necessarily be either in the *Star* itself, or in the *Æther* adjacent thereto; and not in the lower *Region of the Air*. And 'tis a Confirmation hereof, that such *Changes* happen but seldom, and at long periods; whereas the *Changes* that happen in the *Air*, from the interposition of Vapours, are frequent.

These Changes not justly assigned to the Air.

15. Again, if any one shall judge from the *Order of the Heavens*, and the Equability of their Motion, that they are *immutable*; and take the exactness of their Periods and Revolutions, as a certain sign of their Constancy, because such a *constancy of Motion* may seem unsuitable to a corruptible Substance; he should consider a little more attentively, that these regular Returns and fixed Periods are also found in some things upon the Earth; particularly in the *ebbing and flowing of the Sea*: And that the smaller Differences which there may be in the *celestial Bodies*, their *Periods* and *Revolutions*, escape our Sight and Calculation^l.

Order and exact Motion, no Argument of Immutability in the Heavens.

16. No more can the *circular Motion* of the *Heavens*, be brought as an Argument of their Immutability; as if because a *circular Motion* has no End, it should be adapted to an ever durable Substance: For even the lower *Comets* descend below the Moon; and that from a Force of their own; unless any one had rather give into that idle Fiction of *Aristotle*, of their being tied to a *Star*. And if Men would argue for the *Eternity* of the *celestial Bodies*, from their circular Motion; the Argument should be applied to the whole Expanse of the *Heavens*, and not to their Parts: For the *Air*, the *Sea*, and the *Earth*, are eternal in their entire Masses; but perishable in their Parts. On the contrary; supposing the Rotation of the *Heavens*, their *Eternity* cannot be thence collected; for their Motion is not perfectly circular, or such as restores itself exactly, in a Circle; but has its Declinations, Curvatures, and Spirals^m.

Circular Motion no Argument of Eternity in the Heavens.

17. Again, if any one should retort our own Argument, which asserts the *Changes* happening in the Earth to be accidental, or proceeding from above; and maintain the Case to be otherwise in the *Heavens*; which can by no means suffer, in like manner, from the *Earth*; whose Influences must all fall short, without reaching to the *celestial Bodies*; so that, probably, the *Heavens*, being exempted from all hostile Violence, are capable of *Eternity*; as not liable to Injury, or disturbed from any opposite Nature: We acknowledge the Force of the Objection; for we pay no deference to

Whether the Earth be capable of affecting the Heavens.

^k For an Account of such Stars, see the *Philosophical Transactions*, and *Wolffius's Elementa Astronomia*, pag. 593, 594, 595.

^l The late Improvements made in *Telescopes*, and other *Optical Instruments*, have enabled Astronomers to discover such smaller Objects and Variations in the *Heavens*, as without such Improvements, must have been still unknown. See *Wolffii Elem. Astronom. passim*.

^m But in the Hypothesis of the *Earth's Motion*, things appear much more simple; tho this, as was before observed, is no Proof of the Truth of that Hypothesis.

That the celestial Bodies may suffer from one another.

The fictitious Machinery of the Astronomers to prevent Disorders in the Heavens.

the Opinion of *Thales*, who would have the celestial Fires fed and maintain'd by the Vapours arising from the Earth and Ocean: For these Vapours fall back nearly in the same quantity they ascended; are absolutely insufficient for recruiting both the Earth and the celestial Bodies; and, indeed, can, by no means, rise so high. But, however the material Effluvia of the Earth may fall short of rising to the Heavens; yet, if the Earth should, according to the Opinion of *Parmenides*, and *Telofius*, be the primary cold Body of Nature; 'tis not easy to say, with certainty, to what Height this unfriendly and rival Virtue to the Heavens, may insinuate itself, gradually, and by succession; especially as subtle Bodies imbibe, and long preserve the nature and impress of Cold and Heat. But granting the Heavens not to be affected by the Earth; yet the celestial Bodies may suffer and be changed by one another, as the Sun by the fixed Stars; the fixed Stars by the Sun; the Planets by both; and all the Stars by the Æther they float in, especially on their Surfaces^a.

18. The Notion of the Eternity of the Heavens seems to receive much countenance from that Machinery and Architecture which Astronomers have busily introduced. They have been extremely careful that the celestial Bodies should be subject to nothing more than a simple Rotation; and, in all other respects, remain quiet and undisturbed. Hence they have, as it were, nail'd down each Star to its Orbit; and for their Declinations, Retrogradations, &c. they make so many perfect Rings, of a proper thickness, and turn and polish both their concave and convex sides so exquisitely, as to leave no Roughness thereon; but adapt and fit them to one another, in such a manner, as to make them slide smoothly and equably, without stickage. And this kind of Grooving and Machinery is an ingenious contrivance for Eternity; as it removes all Violence and Disorder, which are the inseparable Forerunners of Corruption and Destruction. For, doubtless, if such vast Bodies as the Globes of the Stars, were to cut thro the Æther, and not remain continually in the same parts thereof, but fall thro various Portions, and very different Tracks of it; as they sometimes mount upward, sometimes descend downward, towards the Earth, sometimes tend to the South, and sometimes to the North; there must be great danger of numerous Impressions, Shocks, Fluctuations, and mutual Comotions in the Heavens: Upon which would follow such Condensations and Rarifications of the celestial Bodies, as might pave the way for new Generations and Alterations^b. And, as it appears from physical Reasons, and also from the Phenomena themselves, that this latter is plainly the Case

^a Sir Isaac Newton shews, that the fixed Stars, on account of their immense Distance, can have very little Force in disturbing the Planetary System by their Gravity, which is also balanc'd or destroy'd by their mutual Action every way upon one another: But may not some small Effect be wrought by the Light of the fixed Stars upon the Planets? See Newton. Princip. Lib. III. Prop. XIV. and Mr. Bayle's Apology for Astrology, in his Memoirs for a General History of the Arts.

^b This Description seems exactly to suit the Comets, which move in all Directions thro the Planetary Regions; and may occasion very great Changes, in numerous respects. See Dr. Hook's Discourse of Comets.

Case in Nature; and that the abovemention'd Machinery of the Astronomers is but a *Fiction*, or a mere empty Imposition upon Nature; the same Judgment may be likewise pass'd upon the Opinion of the *Eternity of the celestial Bodies*, which is joined therewith, and built upon it.

19. But if any one should here attack us from *Religion*, we answer; 'Tis *The Neutrality of the* only the Heathen Arrogance that attributes this Eternity to the *Heavens* alone; whereas the Scriptures attribute it both to the *Heaven and Earth*: *Scripture in this Matter.* For we not only read, that the *Sun and the Moon are eternal and faithful Witnesses in Heaven*; but also, that *Generations shall come and go, but the Earth endure for ever*: Whilst of the frail and perishable Nature of both, 'tis at once said, *the Heavens and Earth shall pass away, but the Word of the Lord shall not pass away*^p.

20. If any one shall still insist, tho it cannot indeed be denied, that *The Extremities of the* infinite *Changes do happen on the surface of the Earth*, and the Parts adjacent; but not after the same manner in the *Heavens*; we answer, that we do not compare them together in all respects; and yet to take those call'd the *upper and middle Regions of the Air* for the *Surface, or Covering of the Heavens*; *Heavens towards the Earth greatly infested.* as we do that upper Part, or Crust, wherein Animals, Plants, and Minerals are contained, for the *Covering of the Earth*; there will also be a great variety of Generations found therein. And thus all kinds of Tumults, Conflicts and Disorders, may seem to have place only in the *Confines of the Heavens and Earth*: As we see in *political Government*, it frequently happens, that the Frontiers of two Kingdoms are infested with continual IncurSIONS and Outrages; whilst the Heart, or more central Provinces of each enjoy a continued *Peace*; or are only now and then molested with destructive *Wars*.

21. As to that other kind of *Heterogenity*, consisting in a denial of Heat *Heat denied by Aristotle to the celestial Bodies.* to the *celestial Bodies*, invented by *Aristotle*, to prevent the *Conflagration of* *Heraclitus*, and making them only heated by Accident, in rubbing against and beating the *Air*; we are at a loss to know what *Aristotle* could mean by thus forsaking Experience, and running opposite to the Consent of the Ancients. But 'tis no new thing with him, to snatch a *single Instance from Experience, and immediately to insult Nature with it, in the manner of a Bravo*^q. But we shall say more to this Point under the *Question*, Whether *the Stars are real Fires*: Proposing, however, to treat it more accurately, and at large, in our *Directions for the History of the Cardinal Virtues of Nature*; where we shall explain the *Nature and Origin of Cold and Heat*; a Subject hitherto *unknown and untouch'd*^r. Thus much may serve to the

F 2

state

^p See the Arguments drawn from Revelation, for or against any *Astronomical System*, briefly consider'd in *Wolffius's Elementa Astronomia*, Schol. 4, 5, 6. pag. 303, 304.

^q Perhaps no Commentator ever understood *Aristotle's Works* better than our Author.

^r See hereafter, pag. 40.

^s The *History* here intimated was never publish'd: We may, however, make some Conjecture what it would have been, from the *Sylva Sylvarum*; the *History of Winds, Life and Death*, &c. Mr. *Boyle* seems to have had a direct View to supply it, which he has done, in some measure, by his *History of Cold*; but his *Enquiry into Heat* was unfortunately lost. See Dr. *Hook's Lectures of Light*.

state of the *Question*, as to the *Heterogenity of the Heavens*. Perhaps, the nature of the thing might require that *Aristotle's* Opinion should here be condemned, without farther delay; but it is not our present business to pass *Sentence*.

Question.

(2.)
What are the
Contents of
the interstel-
lar Spaces?

Perhaps a lu-
minous Sub-
stance of the
same Nature
with the fixed
Stars.

Their differ-
ence not well
explained by
Density in the
Stars, and
Rarity in the
Æther.

22. Let the *second QUESTION* be, *What are the Contents of the interstellar Spaces?* For they are, (1.) either empty, as *Gilbert* imagin'd, or, (2.) fill'd with a Body, which may be to the *fixed Stars*, as *Air is to Flame*; or, (3.) fill'd with a lucid Body, homogeneous to the Stars; tho of a less bright, and vibrating Nature. This latter seems to be the common Opinion, in making the *Stars* the densest part of their own Orbits: For a less lucid Body may be transparent, and transmit a stronger Light; since, as *Teleseus* accurately observed, even the common *Air* may hold some Light; because there are certain Animals that see by Night, whose Eyes are fitted to receive, and be affected by, a very small degree of Light: For 'tis not so probable, that the *Act of Vision* should be performed without Light, or from the bare *internal Light* of the visual Spirits*. Flame itself also appears transparent; so as to transmit the Image of an opaque Object; as we see by the Wick of a burning Candle: And much easier might it transmit intenser Light than itself. Again, some Flames are paler than others: This proceeds either from the nature or quantity of the Body inflamed: for the Flame of *Tallow* or *Wax* is more luminous and fiery, than the Flame of *Spirit of Wine*; which seems somewhat more opaque, and, as it were, aerial; especially, when in a small quantity; so as not to thicken itself. And to this purpose we have made an *Experiment*, by causing *Spirit of Wine* to burn around a flaming Taper; where it was easy to perceive the Flame of the *Wax-Candle* shining white, thro the midst of the weaker and more dusky Flame of the *Spirit of Wine*. In like manner, we frequently see shining Gleams shooting in the Air, that of themselves afford a manifest Light, and remarkably illuminate or dissipate the Darkeness of the Night; whilst, at the same time, we perceive the Stars, clear thro the Bodies of these Gleams.

23. But this Difference between the *fixed Stars* and the *interstellar Æther* is not well defined by *Rarity* and *Density*; so as to make the *Star* dense, and the *Æther* rare: For here below, Flame is generally a more subtile, and more rarified Body, than *Air*: and the like may probably obtain in the celestial Regions. But 'tis a gross Error to conceive the Stars to be a part of their own Orbits, and; as it were, nail'd on to them; which confounds the *fixed Stars* with the *others*. This is no more than a *Fiction*; for the Stars in their course must either cut the *Æther*, or the *Æther* revolve with them. For tho they should move obliquely, they must necessarily float thro the *Æther*. And we have above observed†, that the *mechanical Notion of contiguous Orbs framed together, so that the Concavity of the superior Orb should receive the Convexity of the inferior, as in*

* See Sir Isaac Newton's *Opticks*. Quer. 16. pag. 321, &c.

† See above, 18.

a polish'd Groove, without hindering each other's Revolution, has no reality: Whilst the Body of the *Æther* is one continued thing, like the Body of the *Air*^v; only because there is a great diversity found betwixt them, with regard to *Rarity* and other *Properties*, it is convenient to distinguish them into different Regions, for the sake of Information and Clearness. Let the present QUESTION, therefore, be considered, as we have here explained it^v.

24. Next follows a complex QUESTION concerning the substance of the Question Stars; wherein we are first to enquire, *Whether there are any other Globes of solid and compact Matter, besides the Earth?* (3.) For it may be justly conceived, that Nature, in the distribution of Matter, did not work up the whole stock of compact Body into this single Globe of Earth; whilst there appears to be so large a number of others, consisting of a rarer and more expanded Substance. *Gilbert* has indulged this Thought so immoderately (tho some of the Ancients were before him in it) as to assert, not only the *Earth* and *Moon*, but numerous other solid and opaque Globes, to be diffused among the shining ones, thro the vast expanse of the Heavens. He likewise supposes, that even the shining Globes themselves, as the Sun, and all the brightest Stars, consist of a certain solid, tho more shining and equable Matter; thus confounding original Light with secondary Light, or Splendor; which is only Light reflected^x: For he also imagined, that our *Sea*, did, of itself, dart out Light, to a considerable distance. The same Author acknowledges no Globes of other than solid Matter; and the Atmospheres about them, he supposes to be only the subtile Parts or Effluvia thereof; whose expansion, at length, ceasing, leaves the unpossessed Space a Vacuum.

Whether there are any compact and solid Globes besides the Earth?

25. And, certainly, the Supposition of the *Moon's* being a solid and material Body, may justly require a very diligent and serious Enquiry, from those who desire to search into the Works of Nature: For the Moon does not transmit Light, but reflect it; has, in a manner, no Light of her own; and is full of Inequalities: Which are all Properties of a solid Body. And we see, that both the *Æther* and the *Air*, which are rare Bodies, receive the Light of the Sun; but not reflect it as the Moon does^y. And the Rays of the Sun are so active, as to penetrate and pass thro the densest Clouds,

Whether the Moon be a solid Body?

^v See above, Sect. I. 18, &c.

^w It is before observed, that Sir *Isaac Newton* has shewn the interstellar Spaces contain but a very subtile Matter; or else that *Æther*, allowing its Existence, makes no considerable Resistance to the Planets and Comets continually floating in it: But what this *Æther* is, has not been hitherto satisfactorily shewn, by Induction: Tho there seem to be a considerable number of Experiments and Observations, made by the Moderns, which, if duly laid together, might afford some Light in this Matter. See above, Sect. I. 17, 18.

^x See the Table of Enquiry into Light and Splendor, towards the beginning of the SCALA INTELLECTUS, Vol. III. See also, Dr. *Hook's* Lectures of Light.

^y Let it be remember'd, that Light is not visible in the Rays of Light themselves, for a Beam of the Sun being admitted into a dark Room, has no effect on the Eye; but only, as it is reflected by the Particles of Dust or Effluvia, continually floating in the Air. See *Newton, Princip. Lib. III. pag. 467. and Opticks, passim.*

Clouds, which are of an aqueous substance; but they do not thus pass thro the *Moon*. The *Moon*, however, is observed, in *Eclipses*, to have some little obscure *Light*^a; but in the *New Moon*, the *increase*, and the *wane*, there is none found; except on the Part illumin'd by the Sun. Again, impure and turbid *Flames*, such as *Empedocles* supposed the *Moon* to be, are certainly unequal; tho then these inequalities are not fix'd, but generally moveable: Whereas the *Spots*, and dusky parts of the *Moon*, are thought to be constant. Add to this, that these *Spots in the Moon* are also found, by the *Telescope*, to have their lesser inequalities; so that the *Moon* is now certainly known to be variously figured: And that *Geography*, or *Map of the Moon*, which *Gilbert* conceived in his Mind, may now, by the Industry of *Galileo*, and others, seem to be actually making^a.

Whether
there be not
other solid
celestial Bo-
dies besides
the Moon.

26. But if the *Moon* really consist of a certain solid Matter, like the *Earth*; let it next be considered, whether *she be the only celestial Body of this kind*: for *Mercury* also, is sometimes found in conjunction with the *Sun*, as a little *Spot*, or *minute Eclipse*, of that *Luminary*^b. But those very black *Spots* found in the *Southern Hemisphere*, as fix'd and constant as the *milky Way*, may give us still farther suspicion, that there are *opaque Globes*, even in the *higher parts of the Heavens*: For it seems improbable, that the *Heavens* in those places should be *thin*, and, as it were, perforated; because such a decrease and want of visible Matter, could by no means strike the sight at that distance: whilst, at the same time, all the rest of the *Æther* is invisible to us, and undistinguishable; but by comparison with the *Bodies of the fixed Stars*. It should seem probable, that these *Blacknesses* are owing to a defect of *Light*; because there are few *Stars* found in that *Quarter of the Heavens*: as, on the other hand, there are more observed about the *Milky Way*; which, therefore, appears continually luminous; as the others appear dark. For the *celestial Fires* seem placed nearer together in the *Southern Hemisphere*, than in the *Northern*; or the fixed *Stars* to be there fewer, and the spaces between them larger. But the Account of these *Spots* is not hitherto well verified; at least, the diligence used in observing them has not been so considerable as to allow of Consequences to be drawn from it^c.

Many invi-
sible dark
Globes may
be dispersed
in the Hea-
vens.

27. It comes closer to the present Enquiry, *that there may be more opaque Globes, dispersed thro the Æther; tho no way visible*: For the *Moon* in her first

^a Suspected owing to her *Atmosphere*. See the late *Astronomers*, but particularly *Wolff's Elementa Astronomia*, p. 467.—472.

^b And is now actually delineated by the Labours of *Hevelius*, in his *Selenographia*, and by others. See *Wolff's Elem. Astronom.* pag. 470, &c.

^c Every one knows, that all the *Planets*, with their *Satellites*, are, in the present System of *Astronomy*, allow'd to be a kind of *Earths*; and the *Comets* themselves a kind of *Planets*. Sir *Isaac Newton's* Determination of their *Motions and Situations*, from the *Law of Gravity*, is a great presumption for the Truth of this Supposition.

^d For a farther Account of these Particulars, consult *Father Noel's Observationes Mathematicæ & Physicæ in India & China factæ* *Wolff. Elem. Astron.* 420, 421. 394, 395, &c. and the *Philosophical Transactions*. *Lowth. Abridg.* Vol. I. p. 247, &c.

first and earliest appearance, strikes the Eye, from the side illumin'd by the Sun, with a thin Rim, or external Part of a Circle; but remains invisible in the other part of her Face; or undistinguishable from the *Æther*: And the *Satellites of Jupiter* are drowned from the sight, like little invisible Islands, by the Ocean of *Æther* they float in. So, likewise, if that infinite number of *small Stars* which now set thick together, make the *Milky Way*, were placed separate, and at a distance from one another, they would perfectly escape our sight; as numberless others do, which shine in clear Nights; especially in the Winter Season. Thus, again, many *nebulous Stars*^d are now distinctly number'd, by means of the *Telescope*; which has also actually discovered dark Parts, Spots, and Inequalities, in that pure Fountain of Light the *Sun*^e. And, certainly, if nothing else, yet the Gradation observed among the *Stars* in point of Light; descending from such as are most clear and bright, to such as are dusky and obscure; may persuade us, that *possibly there are Globes perfectly opaque*: For, the degree from a *nebulous Star* to an opaque Body, seems to be less than from the brightest Star, to a *nebulous one*. Besides; the human sight is plainly limited, and deceived: For whatever is dispersed in the *Heavens*, that has no remarkable Magnitude, nor affords a strong and vivid Light, lies concealed from us, and alters not the face of the *Heavens*.

28. And let no unskilful Person be here surprized at putting the *QUESTION*; *Whether Globes of compact Matter may hang and float in Æther?* That solid Bodies do float in the Æther. For the *Earth* itself floats pendulous in the midst of its own soft bed, the *Atmosphere*: And vast Masses of watery *Clouds*, and *Mountains of Snow*, hang in the Regions of the *Air*; and are thence rather precipitated, than suffer'd to descend, before they approach near the *Earth*. Whence *Gilbert* very well observed, that *heavy Bodies removed to a vast distance from the Earth, gradually lose their motion of Descent*; which Motion has its Origin from no other appetite of Bodies, than that of coming to and associating with the *Earth*, which is the Mass of Bodies of its own Nature^f. And this Motion is terminated within the Sphere of its own Activity: For as to what Men talk of a Motion to the *Earth's Centre*, this were to make a mere nothing have an active Virtue, and attract all things to itself; whereas one Body can never be acted upon, but by another^g.

29. This *QUESTION*, therefore, concerning *opaque and solid Globes*, The Stars to be ranged into Suns and Moons. tho it be new, and may sound harsh to vulgar Ears, should be received into our *History of Philosophical Astronomy*, and coupled along with that other ancient *QUESTION*, hitherto undetermined; viz. *Which of the Stars afford an original Light of themselves; and which receive their Light from the Sun?* The Determination of this *QUESTION* will range the Stars into Suns

^d For these, consult the Authors last mention'd.

^e See the *Philosoph. Transact. French Memoirs, Wolfius, &c.*

^f This is only, in other words, expressing the Motion of Gravitation to the Earth.

^g This seems to be the same Doctrine as Sir Isaac Newton intends, when he endeavours to assign the Cause of Gravity; by means of a *subtile Matter*. See the *Queries at the End of his Opticks*.

Suns and Moons. To these two QUESTIONS should likewise be annexed the *Enquiry into the different substance of the Stars, in respect of each other*: For their Substance appears to be various; some being found constantly and manifestly *reddish*; others *livid*, others *white*, others *bright and shining*, others *nebulous*, &c.^b

Question

(4)

Are the fixed Stars so many Fires?

The Fire of the fixed Stars different from culinary Fire in respect of Situation.

In respect of Substance.

The difference betwixt celestial and culinary Fire.

30. Let the fourth QUESTION be this. *Are the fixed Stars actual Fires?* This QUESTION requires to be prudently stated, and distinctly understood: For 'tis one thing to say, that the *fixed Stars* are real Fires; and a very different one, to say that they have all the Virtues, and produce the same Effects as common culinary Fire. We do not here mean any notional or imaginary Fire, that retains only the Name, without having the Properties of Fire: For if our common Fire were to be placed in the *Æther*, in such a quantity as 'tis in a *fixed Star*, it might produce different Effects from what we find among us here below. All *Natures* have very different Virtues; not only according to their Quantity, but also their Situation, with respect to other things. For the larger Masses of Matter, or Bodies of the same Nature, which are collected together, in such a quantity as bears some proportion to the sum of the Universe, have certain *cosmical Virtues* in their Wholes, that are no way found in their Parts. Thus the Ocean, which is a huge collection of Water, ebbs and flows; but Ponds and Lakes have no Motion of this kind. So again, the whole Body of the Earth hangs pendulous; but small portions of the Earth drop and fall downwards. Whence the situation of a thing is of the greatest Moment, in every respect, both in the larger and smaller Portions thereof; by reason of agreement, or disagreement, of the things which lie contiguous or adjacent to itⁱ.

31. But there must necessarily happen a greater diversity between the Fire of the *fixed Stars*, and our Fire below; because they differ not only in *Situation*, but somewhat also in *Substance*: For the *stellar Fire* is pure, entire, and native; but our Fire is degenerate; and, like *Vulcan* thrown from Heaven to Earth, proves lame with the Fall. Thus, to observe it closely; Fire, with us, seems to be out of its own Situation; trembling, surrounded with its Opposites, needy, and requiring a constant supply of Aliment to preserve it from sudden perishing: Whereas, in the Heavens, Fire seems, in its due and natural Situation; separated and removed from all opposite Violence; constant in itself; preserved by things of its own likeness; and performing its proper Operations, free and unmolested. *Patrius*, therefore, had no occasion, for solving the *pyramidal Form of Flame*, as 'tis found among us, to feign, that the upper parts of the Stars opposite to the *Æther* might be *pyramidal*; tho the lower parts opposite to us are

^b This is done in a very agreeable, geometrical Manner, by *Wolffius* in his *Element. Astronom.* so far as the present Discoveries reach. Thus all the *Planets* and *Comets* are made *Moons* to the *Sun*, in the solar System; and all the *fixed Stars* probably shewn to be *Suns*, with their several *Moons* about them.

ⁱ See this Doctrine more largely explained by Mr. *Boyle*, in his *Cosmical Qualities*, and *Cosmical Suspicions*.

are globular: For this *pyramidal figure of Flame* is only accidental, and proceeds from the pressure and constriction of the Air upon it; which thus squeezes it from the round figure it has about its own Fewel, and gradually forms it into a Pyramid: Whence *Flame* becomes broad at the Basis, and sharp at the Vertex; contrary to what happens in Smoke, which appears like an inverted Pyramid; because the *Air* receives Smoke, but compresses Flame. Hence it should seem probable, that as *Flame* is pyramidal here below, 'tis globular above^k.

32. So likewise *Flame* below is a momentary Body, but in *Æther* permanent and durable; and even with us, *Flame* might remain, and subsist in its own Form, were it not destroy'd by the Bodies which surround it; as manifestly appears in *large Flames*: For *Flame* situated in the midst of, and totally surrounded by another *Flame*, is not destroy'd; but remains in a rapid Motion, numerically the same, and unextinguished. The Violation of *Flame* begins from the sides; and thence proceeds its Suffocation. And that an internal *Flame* will permanently continue of a globular figure, whilst an external *Flame* plays and vanishes in a pyramidal one, may be experimentally demonstrated, in two *Flames* of different Colours^l.

*Flame in
Æther per-
manent.*

33. There may likewise be a great difference in the *heat of the celestial and terrestrial Flame*: For the celestial plays, and spreads itself with ease and freedom, as in its own proper Sphere; whilst the terrestrial is bound down, burns and rages, as in a Sphere not its own: For all Fire burns the stronger for being pent up, and imprison'd; and even the Rays of the celestial *Flame*, after they arrive at more dense and stubborn Bodies, depolite their gentleness, and become more violent and scorching. *Aristotle*, therefore, need not have been afraid that *Heraclitus's* Conflagration would fire his World, tho he had allowed the *Stars* to be real Fires^m. This QUESTION, therefore, may be received according to the Explanation here given of it.

*Difference
betwixt the
celestial and
terrestrial
Flame.*

34. The next QUESTION may be this. *Do the Stars receive nourishment, increase, diminution, generation, and extinction?* 'Tis certain, that some of the Ancients imagined, from rude and vulgar Observation, that the *Stars* were nourished, like Fire; and fed from the Waters, the Ocean, and moisture of the Earth; or recruited by the Vapours and Exhalations thereof: But this Notion is unworthy of being made the Subject of a QUESTION. For, as we before observedⁿ, such Vapours never reach any thing near the height of the *Stars*; nor is their Stock, by any means, sufficient to recruit the Waters here below, refresh the Earth by Rain and Dews, and at

*Question
(5.)
Are the Stars
fed, and ca-
pable of Ex-
tinction?*

^k See Dr. Hook's *Lectures of Light passim*.

^l For instance, the white one of Wax, or a proper Composition of *Camphire*, surrounded by the blue one of *Spirit of Wine*.

^m The Author's *Experiments and Discoveries* upon the Subject of *Light, Fire and Flame*, tho he has no where prosecuted the Enquiry, as he intended, seem to lay the Foundation, whereon Dr. Hook, Mr. Boyle, and Sir *Isaac Newton* have since proceeded. See, in particular, Dr. Hook's *Lectures of Light*.

ⁿ See above, §. 17.

the same time nourish and feed such vast Numbers, and such huge Masses, as the *celestial Globes*: whilst 'tis manifest that the *Earth* and the *Ocean* have not visibly lost of their Moisture for so many Ages; whence there seems to be as much returned back as was raised in Vapour^o.

The Stars not fed after the manner of common Fire.

35. Nor do the Stars require to be nourish'd after the manner of our Fire. For where Matter is lost, and wasted, something of the like kind is supplied and assimilated; which kind of Assimilation has its Origin in Bodies, from their being surrounded with things contrary to, or unlike, themselves: But nothing of this kind can be supposed to happen in the internal and similar parts of the *fixed Stars*; no more than in the lower parts of the *Earth*; which also seem not to be nourish'd, but preserve their own substance by *Identity*, and not by *Assimilation*^p. But concerning the outward parts of the Bodies of the Stars; 'tis a proper QUESTION, *Whether they remain in the same constant Tenor, without preying upon, and some way tinging the Ether they float in.* And in this sense let the QUESTION be put concerning the Nutrition of the Stars^q.

Question (6.) Whether the Stars increase, or diminish in their wholes?

36. To the foregoing QUESTION may be properly annexed another concerning *the increase or diminution of the Stars in their entire Bodies*; tho there are but very few Phænomena to occasion the doubt. For first, there is no Example, nor any thing of the like nature, found here below, to countenance the Question; since our own *terrestrial Globe* appears to receive no remarkable increase or diminution in its whole; but preserves its bulk and quantity, uniformly and entire^r. And tho the Stars appear to our sight, sometimes greater, and sometimes less, in their Bodies; yet this alteration of their size may be owing either to their greater or less distance from the *Earth*, as in the *Apogees* and *Peregees* of the Planets, or to the *disposition of the Medium*^s. But the alteration here caused by the *disposition of the Medium* is easily distinguished, because it affects the appearance of no single Star, but the appearance of them all equally; as we find in frosty Nights, when all the Stars seem larger on this account, that the Vapours rise more sparingly, or are more forcibly held down, than whilst the entire Atmosphere is somewhat condensed, and brought a little to an aqueous or crySTALLINE nature, which magnifies Objects^t.

False appearances of the Stars from the interposition of the Clouds.

37. And if any particular Vapours should interpose between a *Star* and the *Sight*, so as to magnify that Star, which frequently and manifestly happens in the Sun and Moon, and therefore may do the same in the other celestial

^o See this Matter consider'd by Sir Isaac Newton, *Princip.* Lib. III. pag. 473. Or, see above, §. 7. and the Note thereon.

^p See above, §. 7 and the Note thereon.

^q See the Question discuss'd by Dr. Hook, in his *Lectures of Light*.

^r See the Note upon §. 7. above.

^s See some uncommon Observations made to this Purpose in Wolf. *Element. Astronom.* p. 594, 595.

^t Compare this with Sir Isaac Newton, *Princip.* Lib. III. p. 467, &c. and the Modern Doctrine of Refraction. See Wolf. *Elem. Astronom.* Cap. VII. *De Refractione & Parallaxi Fixarum.*

celestial Globes, yet this appearance cannot deceive us, because such alteration of Magnitude does not continue, or follow, the *Star* in its Motion; but the *Star* soon gets clear of it, and recovers its usual appearance. There has, however, in ancient times, and again in our own, happen'd a great and most remarkable *Change* and *Renovation* in the Planet *Venus*, both as to *Magnitude*, *Colour*, and *Figure*[†]. Since therefore the *Change* which constantly and regularly follows a *Star*, and revolves along with its *Body*, must necessarily be in the *Star* itself, and not in the *Medium*; and since thro a neglect of Observation, many things that do visibly happen in the Heavens, may escape us; we judge it proper to receive this *part* of the QUESTION into our HISTORY.

38. The other *part* of the QUESTION; viz. *Are the Stars generated and dissipated in a long series of Ages?* is of the same kind, but countenanced by a greater number of Phænomena; tho of one kind only. For as to all the old *Stars*, there is no mention made of the first appearance of any one of them, thro all the Ages of the World; excepting only that idle Story of the *Arcadians* about the *Moon*: Nor, to this day, is there any one wanting of their number. But for the *Comets*, which both in their Form and Motion resemble the *Planets*; they seem to be perfectly new *Stars*, whose appearances and disappearances we have ourselves seen, as well as received from the Ancients. (1.) Some imagine these *Comets* to be spent and consumed in time; (2.) Others judge them to be rarified and resolved into *Æther*; (3.) others, that they only absent themselves for a season, and return again; and (4.) others, that they appear to us only in their *Perigæes*, or near Approximations to the Earth, and then go back again from our sight to the higher Regions of the Heavens in their *Apogæes*. But this entire Question concerning the first appearance of new *Stars*, we assign to that place which treats expressly of COMETS^v.

Whether Stars are generated and dissipated?

39. There remains a seventh QUESTION concerning the *Milky Way*; Question viz. *Whether the Milky Way be a collection of minute Stars, or a continued Body, and part of the Æther, of a middle nature betwixt stellar and ethereal?* (7.) The Opinion, that the *Milky Way* was an Exhalation, is long since exploded, to the merited Reproach of *Aristotle*; who dared to impose a transitory and changeable Nature, upon so fixed and constant a Phenomenon. And, indeed, the QUESTION, at present, seems to be decided by *Galileo*; who has divided that confused *Traße* of Light into distinct and small fixed Stars. For that the *Milky Way* should not intercept the sight of the other Stars betwixt it, does not determine the Point; nor incline the Question either way.

What is the Milky Way?

G 2

[†] That *Venus* is horned, or has the same Phases as the *Moon*, is now commonly known, and allowed. See *Wolf, Elem. Astronom.* p. 480, 481.

^v The Author, we see, designed to have treated the QUESTION of *Comets*, but I find it no where among his Works. He seems to have had a Foresight of the present *Cometary*, as well as *Planetary System*: And, for the present System of the fixed Stars, he had it in great Perfection. We observed in our Preface, that the Piece is imperfect.

way. Only it may, possibly, intimate, that the *Milky Way* is not placed lower than the *Sphere of the fixed Stars*: For if it were, and a continued Body of some Thickness, it probably would intercept the *Sight*. But if placed at an equal Height with the *fixed Stars* that seem to appear thro it; doubtless there may be *Stars* in the *Milky Way*, or in other parts of the *Æther*. We therefore receive this *QUESTION*, that the Point may be fairly decided^v.

Question
(8.)
What is the
Number of
the Stars?

40. The *QUESTIONS* for determining (1.) the *Number*, (2.) the *Magnitudes*, (3.) the *Figures*, and (4.) the *Distances of the Stars*, abstracted from the *Phænomena* and *Historical Questions*^x; which we shall hereafter propose, are little more than *simple philosophical Problems*^y. Thus, with regard to the *Number of the Stars*, let it be enquired; *Whether there be so many of them as there appears to be, or more? and compare them with the Catalogue carefully made by Hipparchus, and laid down in their places on the celestial Globe.* For it is but a superficial Reason which is offer'd for the appearance of an innumerable Multitude of latent or skulking Stars, on clear and frosty Nights, that this Phænomenon should not be owing to the existence of any smaller Stars; but only to the shining, sparkling and vibrating Motions of those already known. *Galileo* has discovered new *Nations* of little Stars; not only in the *Milky Way*, but also in the Region of the Planets themselves. And Stars may be invisible, not only by the Smallness of their Bodies, but also by their Opacity; and again by their elongation and distance from the Earth. But we refer the *QUESTION concerning the additional number of the Stars*, from the generation of new ones, as we did that of their first appearance, and disappearance, to the place where we shall treat of the *COMETS*^z.

Question
(9.)
What their
Magnitudes?

41. (2.) As to the *Magnitude of the Stars*; their *apparent Magnitudes* is matter of Observation; but their real one matter of *Philosophical Enquiry*. Let it therefore be sought, *What is the real Magnitude or Dimension of each Star, either absolutely or comparatively?* For 'tis easier to discover and demonstrate, that the *Globe of the Earth* is bigger than the *Globe of the Moon*, than that the *Globe of the Moon* is so many Miles in Circumference. But let the utmost Endeavours be used to ascertain their precise *Magnitudes*; and if these cannot be procured, let their *comparative Magnitudes* be noted. Their *real Magnitudes* are to be had either from *Eclipses*, and their *Shadows*; or from the extent of their Light and other Virtues; which each Body projects and diffuses, to a greater or smaller distance, in proportion to its Magnitude: And again, from the Proportion and *Symmetry of the Universe*, which, by a certain Necessity, terminate and ascertain the Limits of

^v See *Wolf, Element. Astronom. Cap. VIII. de Stellis fixis & novis, atque Cometis.* Particularly, *Observation 36.*

^x Observe, that the Author calls an *Account of Facts* by the Name of *History*; which we now often call by the Name of *Observations*.

^y But these are wanting.

^z See above, §, 38.

of Bodies of the same individual Nature. But no great dependance, as to the real Magnitudes of the Stars, should be had upon the Mensurations and Calculations hitherto given us by Astronomers: For tho this has the appearance of great Care and Exactness, yet 'tis too licenciously and rashly undertaken; whence more genuine and trusty methods of Proof should be diligently enquired after. The Magnitudes and Distances of the Stars mutually indicate each other, by optical Proportions; tho these require to be more thoroughly sifted and discuss'd^a.

42. (3). The Question concerning the Figures of the Stars may be put ^{Question} thus. Are the Stars real Globes, or Collections of Matter into a solid and ^(10.) spherical Figure? The Stars to the Eye seem to have three different Figures; ^{What their Figures?} viz. (1.) one that is spherical and radiant, as the Sun. (2.) spherical and cornuted, as the fixed Stars; and (3.) simply spherical, as the Moon. But here the Radiancy and the Angles regard only the Sight; and the spherical Figure only the Substance of the Bodies themselves. 'Tis remarkable, that among all the Stars there is none of an oblong, triangular, square, or other polygon Figure. And it should seem, as if all the larger masses of things naturally collected themselves into Globes, for their own Preservation, and the exacter Union of their Parts^b.

43. (4.) Lastly, ^{Question} What is the true Distance of each Star in the Depth of the Heavens? For the side Distances of the Planets, as well in respect of ^(11.) one another, as of the fixed Stars, are governed by their Motions. And here, ^{What their Distances?} as we just now observed of the Magnitude of the Stars, if their exact Distances cannot be had, at least, let their respective Distances be adjusted. Thus if we do not know the true Distance of Saturn or Jupiter from the Earth; yet this we should be certain of, that Saturn is higher in the System than Jupiter. But hitherto the planetary System is not settled, nor the Order of the Planets Places, above one another, absolutely adjusted: The Dispute still remaining with some, which is the highest, Mercury or Venus^c?

44. The

^a Great Accuracy appears to be used by the later Astronomers, in procuring finished Instruments for the business of Observation; especially by Hevelius, Dr. Hook, and many others, since the Institution of the Royal Observatories at Greenwich, Paris, &c. And upon a Collection of Observations made in this way it is, that Sir Isaac Newton builds his Theory of the Moon, and the whole Solar System. But, as our Author observes of his own Time, so still greater Precision is, even at present, required in this Matter. And, perhaps, it were not amiss, if the Mathematical Philosophers would verify their Observations, by the due Use and Improvement of the physical Method, here laid down by the Lord Bacon: For it is highly probable, that the best ways of making Astronomical Discoveries, are not yet known. It is very seldom, that such eminent Contrivers, and Inventors, as the Lord Bacon, Dr. Hook, and Sir Isaac Newton appear; and yet till many such Genius's shall have contributed all their Stock, Philosophy will not be perfect; unless Men of more slender Capacities could, as doubtless they might, be taught the ART OF INVENTING. See the *Novum Organum passim*, and Dr. Hook's *Method of improving Natural Philosophy*.

^b According to the Modern Discoveries, the Sun, and all the Planets, and Comets, are spherical, or, rather, according to Sir Isaac Newton, spheroidal.

^c See these Particulars adjusted by the later Astronomers, in Wolf. *Elem. Astronom. passim*.

44. The Way of discovering the true Distances of the Stars is, (1.) by their *Parallaxes*; (2.) by *Eclipses*; (3.) by their *respective Motions*; and (4.) by their *different apparent Magnitudes*. But other Assistances are to be procured for this purpose; and should be recommended to the future Industry of Mankind^d.

^d Certainly, the Moderns have nobly prosecuted this grand Enquiry: and yet we should not stand still, as if all were performed by Sir *Isaac Newton*, who has, indeed, done Wonders; but still proceed, with Vigour and Alacrity, to farther Discoveries; which himself directs, and has laid Foundations for. Great Genius's are never satisfied with making new Discoveries in their own Persons; but always endeavour to lead Mankind into the way themselves have trod, desiring to be outdone by Posterity. And the greater the Soul, the more it indulges this worthy Appetite. Hence our Author, in particular, seems to have wholly bent himself upon putting all things in the direct way of Enquiry and Determination; which is a near Approximation to Discoveries, and infinitely preferable to a few imperfect Discoveries themselves; as teaching both the present and future Generations, what Particulars are to be chiefly regarded, and sought after, for bringing Philosophy to perfection.

PREFACE.

SUPPLEMENT X.

A

Short Scientifical Critique

ON THE

WORKS of the more EMINENT PHILOSOPHERS,

Ancient and Modern.

PRE-

Short Scientific Critique

ON THE

Works of the great Philosophers

Ancient and Modern.

By

P R E F A C E.

THE following is an imperfect Piece, found among the *Posthumous SCRIPTA*, published by Gruter. But, imperfect as it is, it will, perhaps, be esteemed, by competent Judges, of no small Value; as tending to free Mankind from the Tyranny of great Names, and leave us at liberty to follow Nature.

What particular Use the Author designed it for, or in what Part of his Works he would have introduced it, had he liv'd to revise and finish it, I cannot say: But it manifestly appears, by the whole Tenour, to have an Eye to the *Novum Organum*; up to which it directly leads. It might, therefore, have been properly placed at the Entrance of that Work; were it not required as a Supplement to the *De Augmentis Scientiarum*.

It may be reasonably supposed, that many of those who have read the Works of the Philosophers censured by the Author, will not perceive the Justness of the Censures. A cursory Reading of them is not sufficient for this Purpose: It requires an intimate Knowledge of Nature, and of what Men, by proper application, are capable of performing, to judge of the Validity or Invalidity of the ancient and modern Philosophies.

Besides; if we would not flatter ourselves, we lie under a kind of Incantation, from Prejudice, Prepossession and Custom, with regard to great Names, and Authors, celebrated thro numerous Ages; whence some of us cannot, tho we strongly desired it, use a freedom and justness of Thought in this Matter. But those who are most themselves, and can here exercise a free and independant Judgment, will, perhaps, perceive, that the Author, with a few Master-Strokes, has drawn the ancient Philosophers, and their modern Followers, to a truth; and wish the Work were continued down to later Times, to shew us, as in one Picture, what it is that the great Men of all Ages have busied themselves about.

* See that Work, Sect. XIX. of CRITICISM.

P R E F A C E

THE following is an attempt to present a general view of the progress of the human mind, and of the various sciences, from the earliest times to the present day. It is intended to be a summary of the most important facts and principles, and to be a guide to the student of the history of the human mind. It is not intended to be a treatise on the history of the human mind, but a summary of the most important facts and principles, and to be a guide to the student of the history of the human mind. It is not intended to be a treatise on the history of the human mind, but a summary of the most important facts and principles, and to be a guide to the student of the history of the human mind.

A
FREE CENSURE,
OR
CRITIQUE,

Of the more
Eminent Philosophers, &c.

S E C T. I.

The Arraignment of the Philosophers.

1. **W**E plainly perceive, that the Sciences will not be considerably advanced, till Men shall be once made thoroughly acquainted with the proper Characters, and Merits, of those ancient and modern Philosophers they so much admire. The present Design is, therefore, to deal roundly; and fix a Mark upon such *pretended Philosophers* as we take to have been more *fabulous* than the Poets; *Debauchers of Mens Minds*, and *Falsifiers of the Works of Nature*[†]; and to make, at least, as free with that degenerate, servile Tribe, their Followers, Flatterers, and the Hirelings, who corrupt Mankind for *Gains*. And we shall take the liberty to cite each of them by *Name*; lest, as their Authority is so great, we should be apprehended only to *set a part*; and,

*Admiration
of the Ancients
prejudicial to the
Sciences.*

H 2

under

[†] These Expressions will lose of their Strangeness, if the Reader be acquainted with the Author's Pieces *De Augmentis Scientiarum* and *Novum Organum*.

[‡] This aims at *Professory Institutions*; destin'd to teach the *Philosophy of Aristotle*, suppose, or any other Author, instead of the *Philosophy of Nature*.

The Character of Aristotle.

under colour, side with some or other of them^b; since they cherish such violent Disputes and Animosities among themselves.

2. Let ARISTOTLE first appear; whom we charge, (1.) with *abominable Sophistry*; (2.) *useless Subtilty*; and, (3.) *a vile sporting with Words*. Nay, when Men, by any Accident, as, by a favourable Gale, arrived at any Truth, and there cast anchor; this Man had the assurance to fetter the Mind with the heaviest Irons; and composing a certain ART OF MADNESSⁱ, enslaved Mankind with Words.

Again, from the nursing and tutoring of this Man, have arisen a shoal of *cunning Triflers*; who, turning their backs upon Nature, and all the Light of Things and History^k, overspread the World with numerous *Mock-Schools*; rais'd, by the restless agitation of Wit, principally upon that extremely ductile Matter of his *Precepts and Positions*^l. But they indeed, are more excusable than their *haughty Dictator*; because they did not, like him, *offend against better light and knowledge*: For he, after having trod in the open Plains of *History*, and viewed the *Works of Nature*^m, yet dug to himself a Dungeon, and fill'd it with the *vainest Idols*ⁿ. And, what adds to his Guilt, he has, even upon the *History of Particulars*, raised certain *Cobweb Structures*, which he would palm upon Mankind for CAUSES; whilst, in reality, they are matters of no Validity nor Value; but nearly resembling those, which, in our time, that *Antipode* to Things, as well as to himself, *Cardan*, busied himself in forming^o.

Cardan.

Ramus.

But whilst I thus arraign the *Works of Aristotle*, let me not be supposed a *Conspirator*, and in League with *Ramus*, that modern Rebel against him. I have no affection for that *sculking Hole of Ignorance*, that destructive *Book-worm of Learning*, that *Father of Epitomes*, who, when he wrings and presses things with the *Shackles of his Method, and Contraction*; the Subtance, if there was any, immediately starts out, and escapes him; whilst he grasps nothing but the empty Chaff, and exhausted Carcass^p.

Aquinas.

^b The Candor and Impartiality of our Author seems every where preserved. Thus, tho he, even in his youth, perceived the vanity, and small significance of *Aristotle's Philosophy*; yet he omits no Occasion of recommending such Particulars in it, as are any way just and useful. The same Conduct he preserves with regard to other Founders of Sects, &c. so as to be deservedly esteemed the Father of the modern *Ecclectic Philosophy*.

ⁱ Calmly to view the several Systems of *Philosophy* that have prevailed in several Ages; what are they more than so many *Arts of Madness*? See the *Novum Organum*, Part I. Sect. I, &c.

^k Without a Metaphor, neglecting *Experience and Observation*.

^l This explains the *Art of Madness* abovementioned; for, as in *Natural Madness*, Men argue upon things that have no Existence or true Foundation; so, in *Philosophical Madness*, we reason about things, whose History, or true State, we have no clear and certain Knowledge of, from Experiment and Observation: But as Madmen do, take all for granted, according to our *frantic Notions*.

^m *Aristotle* was for a time conversant in the *History of Nature*; as appears particularly from his *History of Animals*.

ⁿ What these *Idols* are, see in the *Novum Organum*, Part I. Sect. II.

^o It requires, as was observed in the *Preface*, a considerable Knowledge in the *Works of Aristotle*, to see the justness of these Observations. And the same must be understood of all the following *Authors*.

^p See more to this purpose in the *De Augmentis Scientiarum*, Sect. XVIII. of *Rhetorick*.

SECT. I. more eminent PHILOSOPHERS.

53

Aquinas has gone further, and spun a *variety of things* out of nothing; *Aquinas* leaving, by way of compensation, a *Solitude* in things themselves. And altho he has done this, yet he has the assurance to be frequently talking of *human Uses*; so that I take him for a most *prevaricating Sophister*. And the same Accusation I likewise bring against *Scotus*, and his Followers¹.

3. Let *PLATO* next appear; whom we charge with being (1.) a *well-bred Sophister*; (2.) a *tumid Poet*; and (3.) a *fanatical Divine*; who, by fine-ly polishing, and working together, certain *philosophical Rumours*; and dissembling his *pretence to Knowledge*; endeavoured to loosen and unsettle Mens Minds by *vague Inductions*; and has thus indeed supplied abundant matter of *Table-Talk* to Men of Letters, in respect of *civil Conversation*, *polite Life*, ornament, and sweetness of *familiar Discourse*: But when he falsely asserted, that *Truth was not an Inhabitant of the human Mind*, but a *Stranger come from far*; and turn'd *Mens Thoughts* from the *History of Nature*, and from *Things* themselves; (tho never sufficiently applied thereto) and taught the Mind to enter into itself; and there, under the Name of *Contemplation*, to tumble over its own *blind and confused Idols*; then it was he committed the *capital Crime* of which we accuse him. And no less impiously has he introduced the *Canonization of Folly*; and had the assurance to skreen his degenerate and corrupt Notions under the *Cloak of Religion*. And here lies the *strength of the Charge*. But for his being the *Father of Philology*, *polite Literature*, and *elegant Writing*, who by his Example, Authority and Success, captivated, persuaded, and led Numbers to content themselves with a *Character for Wit, Politeness, Agreeableness*, and a *popular knowledge of things*, to the Detriment and Corruption of a severe *Cicero*, and rigorous Enquiry after Truth; we account this a less heinous Offence. *Seneca*, And among the Men thus captivated by him, we reckon *Cicero*, *Seneca*, *Plutarch*, and *Plutarch*, with numerous others, no way comparable to them².

4. Let us next proceed to the *Physicians*; and first summon *Galen* to appear: whom we implead, (1.) as a *Man of a very narrow Mind*; (2.) a *Deserter of Experience*; and (3.) an *idle Caviller*. This is the Man that would skreen the ignorance and sloth of Physicians from their deserved Reproach; and preserve them unattack'd; whilst himself most feebly and unequally pretends to perfect their *Art*, and fill up their Office. This is the Man, that, like the raging *Dog-Star*, or the *Plague*, devotes Mankind to *Death* and *Destruction*, by pronouncing such *TRIBES OF DISEASES INCURABLE*; taking away all glimmering of hope, and leaving no room for future industry. This is the Man, who makes his own *fiction of Mixture* to be Nature's sole Prerogative. This the Man, that is every where fond of shewing and boasting the *Sedition, Strife, and Disagreement betwixt the celestial Heat and that of Fire*: And upon this, and all other occasions, maliciously curbs the *human Power*; and endeavours to surround and protect Ignorance.

¹ See a farther Account of the Schoolmen, in the *De Augment. Scientiar. Prelim. Sect. III. 33.*

² See *Nov. Organ. Part I. Sect. II.*

³ Mere Platonists, or Men of Contemplation, must not here be the Judges: But those well versed in *Physical Knowledge*, the *Doctrine of Business*, the *Wants of Mankind*, and the Ways of supplying them.

Ignorance with eternal Despair. 'Tis owing to this Man's Unworthiness, that we dwell no longer upon his Charge. Let him then be dismiss'd; and take along with him, his long train of Associates; those *Dispensatory Compilers* the *Arabians*, who have shewn such Folly in their *Theories*; and from their *supine and jejune Conjectures*, amass'd together such *Heaps of Promises*, instead of real Helps, from *vulgar Remedies*. And let the Rear be brought up with that superficial Tribe of *modern Doctors*, whose Names are not worth the mentioning^a.

The Arabian
Physicians.

Fernelius.

5. We must, however, make some difference in this *Tribe of Triflers*; the worst and most absurd sort whereof, are those who have pent the whole Art into *strict Methods*, and *narrow Systems*; which Men commonly cry up for the sake of their Regularity and Style: and such a kind of Author is *Fernelius*. But they are less prejudicial to the *Art*, and to Mankind, who deliver a *large stock* and *variety* of *Observations*, *Experiments*, and *particular Cases*, even tho they pollute and obscure them with their absurd and foolish Reasons, idle Hypotheses and Solutions; like *Arnoldus de Villa Nova*, and others of the same Stamp.

Arnoldus de
Villa Nova.

The Cha-
racter of
Paracelsus.

6. On the opposite side stand the *Tribe of Chemists*, with *PARACEL-
SUS* at their Head; who, for his Insolence, deserves to be separately cha-
stised, as a *flagrant Example*: For those accused above are only *Falsifiers* and *Pretenders*; but this Man is throughout a Monster. What *Bacchanalian Oracles* are those he utters in *Meteorology*; whilst he is ridiculously aping of *Epicurus*? All that *Epicurus* offers upon the Subject is but *drowsy Opinion*, which he unconcernedly left to its *Fate*; but *Paracelsus*, blinder than *Fate*, and more rash than *Chance*, is ready to avouch the absurdest *Falshoods*. What *Dreams of Resemblances*, *Correspondences* and *Parallels* of the *Pro-
ductions* of his *Elements*, are given us by this *fanatical Linker-together* of *Idols*? His *three Principles*, indeed, might be received with some *Utility*; as having a *Foundation in Nature*: But he is continually wresting them to every thing, according to his great Dexterity in *Delusion* and *Impos-
ture*. But these are not the worst of his *Crimes*: For, besides all this, he, like a *sacriligious Impostor*, has mix'd and polluted *divine things* with *natural*; *sa-
cred* with *prophane*; *Fables* with *Heresies*; and *human Truths* with *religious*; so as not, like the *ancient Sophists*, to have hid, but utterly extinguished that *sacred thing* he has so frequently in his *impious Mouth*, the *LIGHT OF
NATURE*. The *Sophists* were only *Deserters of Experience*, but *Paracel-
sus* has *betray'd* it; and subjecting the crude and personated Evidence of things to *Rules of Contemplation*, and deriving the various alterations of Substances from *imaginary Motions*; he has thus endeavoured to corrupt the *Fountains of Science*, and *dethrone the human Mind*. At the same time, so far is he from understanding, or justly representing *Experience*, that he has added to the *Trouble* and *Tediousness* in *experimenting*, of which the *Sophists*

^a Some sober *Physicians*, who have read *Galen* with Care, may, perhaps, avouch, this *Character* does not suit him. If so, let it be examined whether such *Physicians* are acquainted with the imperfect state of *Physick* in different *Ages* and *Countries*; whether they are sensible of its Imperfections, and can lay down any solid Scheme for improving it.

SECT. I. more eminent PHILOSOPHERS.

55

phists complain, and to which the *Empiricks* are unequal. In short, he has every where, to the utmost, magnified the absurd Pretences of *Magicians*; countenanced such Extravagancies; and encouraged others to believe them, from his own Assurances; being thus, at once, the *Work* and *Servant* of *Imposture*¹.

7. 'Tis great pity he should ever have found such an Abettor and Apo-^{Severinus.}logist as *SEVERINUS*; whose Abilities might have been much better employed, than upon the Fooleries of that Man. It is *Severinus*, who has *modulated the Brayings of that Ass*^v; and by his own skill in *Musick*, play'd then sweetly off, in a *fine variety of Tunes*: And thus converted *shocking* and *monstrous Fictions*, and *Falshoods* into *pleasing* and *delightful Fables*. This Author, indeed, is the more excusable, in that, being sick of the Doctrine of the *Sophists*, which is not only barren of Works, but professedly tends to introduce *Despair*, he went in quest of firmer Foundations, in this general Decay of Philosophy and Arts. And thus when the Works of *Paracelsus* offered themselves, and came recommended with pompous Shew, the subterfuge of Obscurity, affinity with Religion, and other *Impostures*, *Severinus* gave into them, delivered not the real *Fountains of Things*; but only throw'd out Promises and Hopes, with somewhat of Warmth and Indignation: Whereas, would he have acted as he ought, he should have left the *Determinations* and *Maxims* of *Wit* and *Genius*, and gone over to the real *Doctrines* and *Precepts* of *Nature*; which alone is the way to *shorten Arts*, and *lengthen Life*^u.

8. This *Charge* we have brought against *Paracelsus* seems to astonish the *The Chem-*rest of the *Chemists*; who greedily swallow those *Decrees* and *Points of Doc-*trine which he has rather promulgated and promised; than actually laid down, or made good; and defended them with *Arrogance* instead of *Cau-*sion. His whole *Tribe of Followers* appear link'd to one another by the *lying Spirit* that shews itself in their sworn *Hopes* and *Promises*; which they are constantly boasting. However, by wandering thro the *Wilds of Ex-*perience, they sometimes stumble upon certain useful Discoveries; not by Reason, but by Accident^w: Whence, proceeding to form Theories, they plainly carry the *Smoke* and *Tarnish* of their Art along with them. For as that simple Youth, who finding a Stick upon the Shore, would needs convert it into a Ship; so these childish Operators at the *Furnace* must needs be

¹ The *Paracelsists* will, doubtless, be for interposing here: But they are excluded, by the Condition of the Enquiry. They must have better Talents, and greater Knowledge than their Master, before they can judge of his Merits.

^v The Reader will please to remember, that this Piece is imperfect, and in the Original delivered under an *uncertain Form*; sometimes by way of *Advice to a Son*, and sometimes in the Form of *Pleading*: Which latter Form we have endeavoured to keep to; as admitting a greater freedom of Expression. The Author was too well bred to use any coarse or vulgar Language. What, therefore, may appear of this kind, must be supposed spoke under the Veil of Fiction.

^u Without some Knowledge of the Works of *Severinus*, the Force and Justice of what is here said will not be understood. The Author appears to have had all the Works here censures strongly impressed upon his Mind.

^w See *De Augment. Scientiar.* Sect. XII. of *Learned Experiences*.

be raising Philosophy from a few *Experiments of Distillation*; and introducing, at every turn, their own *Idols of Separation and Analysis*, where no Traces of them are really found^x.

9. Yet we do not accuse them all in the *Lump*; but make a difference between that little serviceable Set, who, being not very solicitous about *raising of Theories*, principally practise a certain *mechanical Subtlety* in searching out, and laying hold of new *Inventions*, and *Discoveries*; with their extensive Uses; after the manner of *Friar Bacon*^y; and distinguish these from that *impious Tribe*, who endeavour only at procuring applause to their *Theories*, and court and beg it by a pretended Zeal for Religion, by large Promises, and the Art of Imposture; which is the way of *Basil Valentine*, *Hollandus*, and much the greatest part of the *Chemical Authors*^z.

The Character of Hippocrates.

10. Let HIPPOCRATES be next call'd to the Bar; whom we arraign (1.) as a *Creature patch'd up of Antiquity*; and (2.) a *Retailer of other Mens Knowledge*; under whose Authority, both *Galen* and *Paracelsus* ridiculously endeavour to shelter themselves, like *Asses* under a *Tree*^a. To do him justice, he seems to have had his Eyes at first perpetually fixed upon Experience^b; but then they are fix'd indeed, stupid and immovable, without ranging, and searching for *noble, manly*, and *full Views*: And afterwards, recovering a little from this Stupidity, he takes in *certain Idols*^c; tho not those monstrous ones of *Theories*, but such as are more neat, elegant, and surround the limits of *History*; and having drank these in, he becomes *swollen, sophistical*; and, according to the Custom of the Age he lived in, wraps himself up in *Brevity*; and thus, as his Followers imagine, utters *Oracles*, of which they are ambitious of being thought the *Interpreters*; whilst in reality he does no more than deliver *SOPHISTRY*, by broken, short and interrupted Sentences, so as to prevent a *Confutation*; or else in a haughty manner records such *Observations* as are *trite, vulgar, and known to every Rustic*^d.

Celsus.

11. *Celsus*, as he is justly allowed, comes nearly up to the *Views* and *Designs* of *Hippocrates*, which are not so faulty, as they are *useless*; but he shews himself a more practised *Sophister*, and a better *Modeller of History* than his Master. He is, however, for checking the advancement of Science, from *moral and civil Considerations*: Thus paring off the extremities of *Errors*, instead of cutting them down at the *Root*^e.

This

^x This general Censure of the *Chemists* appears extremely just.

^y Add to him, as capital Authors and actual Inventors of later Date, the Lord *Vermulam*, Mr. *Boyle*, *Becher*, *Homburg*, and *Stahl*.

^z It may appear surprizing, that the Author should have known the *Chemists* so well, as to judge and distinguish thus accurately between them.

^a See the Note upon Sect. 7. above.

^b The Author's Censure of *Hippocrates* requires a Reader of extensive Knowledge, free from Prejudice, and well broke to the self-denying *Doctrins* of the *Novum Organum*.

^c See the *Novum Organum*, Part I. Sect. II.

^d *Hippocrates* has bore such a high Character thro several Ages, that 'tis extremely hard to get rid of the Prejudice: But let his Admirers specify what direct Improvements he has made in *Physick*; and whether he cured more Patients in proportion, than his Predecessors, or those in other Countries, who never heard of his Name.

^e In passing a Judgment on *Celsus*, we must guard against being imposed upon by his Style; and consider only his Matter: which, perhaps, is little more, or better, at bottom, than that of *Hippocrates*.

This free Censure of the most eminent Men will, doubtless, have a strange Appearance to many; and yet, in truth, we produce it not as an inflamed or aggravated Accusation; but as the real state of the Case, representing the very bottom of their Writings, which Mankind are so fond of, and take for the *Pillars* and *Fabrick* of all *Arts* and *Sciences*^f.

S E C T. II.

The Judgment to be passed upon the ancient and modern Philosophers: With the intimation of a juster way of building up the Sciences.

1. I T may be alledg'd, that we have above represented the worst side of *Antiquity* and the *Philosophers*; especially as the *Sciences* generally appear in a state of *Democracy*^g; that Time, like a River, has brought down to us only such Wrecks of former Ages as were light, and superficial; but sunk all that were solid and ponderous: That great things have been done by those ancient Enquirers after Truth, *Heraclitus*, *Democritus*, *Pythagoras*, *Anaxagoras*, *Empedocles*, and others, whose Writings are lost; and that the *Silence* and *Knowledge* of *Antiquity* are not to be lightly esteemed. To all which we will here answer, in our natural manner, candidly, and with a view to the good of Mankind^h.

Objections to the preceding Characters.

2. And first, I acknowledge a *Fragment* or two of early *Antiquity*; by which I do not mean *Books*, but *Inventions*; that are, however, rather, a Specimen of the Author's Diligence and Ingenuity, than deep Knowledge, in respect of *Philosophy* and the *Sciences*; and handed down to us by other Writers. But for those things which have never come down to us, nor any Traces of them, 'twere an endless Labour to make Conjectures about them. Nor can I think it at all proper for me, who am engaged in doing the utmost Service I am able for Posterity, to go back to the *Philology* or *polite Literature* of the Ancients. But in order to give Mankind a view of the prophetic *Janus*-face of the present state of things, and how it looks both back upon times past, and forward upon times to

Answer'd. (1.) That something may have been done by the Ancients.

^f As the Author has been so free in his Censures of the former *Philosophers*, it may very justly provoke a thorough Sifting and Examination of himself. This we could wish to see done by a Hand equal to the Work; and such an one as could not be suspected of Prejudice, or Partiality, for or against him. And were it not also proper, that such a free Sifting and manly Censuring should be continued down to later Authors; in order the better to examine how far the *Sciences* are improved?

^g And are therefore not to be judged of by the Laws of *Aristocracy*, as the Author may seem to have done by censuring the *Heads*, or most capital *Philosophers* of *Antiquity*; instead of the *Sciences* themselves, dispersed among the Body of Mankind.

^h For a thorough Expurgation, it may be proper to peruse the whole *De Augustis Scientiarum*, and *Novum Organum*.

come, I have determin'd within myself to form Tables of both these times; which may not only exhibit the Course, and the Ebbs and Flows of Knowledge; but likewise other Apprehensions and Foresights of things. Nor, perhaps, can the World have a notion, what kind of Performance this will be, till they see it; or, were it not to be put into their Hands, know how to ask for, or expect it; as they are now bound and enthrall'dⁱ. For this we lay down as a certainty, that *Knowledge is not to be fetch'd from the darkness and obscurity of Antiquity; but to be derived from the LIGHT OF NATURE*. Nor does it so much concern us to know what *has been done*, as to see what *may be done*. Would a private Man, put in possession of a *Kingdom*, subdued by Arms, and right of Conquest, raise Questions and Disputes, whether his Ancestors possessed it before him; and perplex himself with Rumours of Genealogies and Descents; or would he not rather secure his Possession, and establish his Dominion?

No wonder
if the Anci-
ents have
fallen into
Error.

3. And whoever considers the Matter closely, will not find it strange, that the above-censured *Heads of Sects*, and numberless others, of the same kind, should fall into Errors, which are various and endless; whereas Truth is but one simple single thing. And had not the *Policy or Foresight of Times* been opposite to such wild Wanderings of the *human Genius*, no doubt but many other Coasts of Errors would have been rambled over: for 'tis an *immense Ocean that surrounds the Island of Truth*; and there still remain many *pernicious Idols*, of late invention, to be *thrown down*^k. Thus *Teleseus* lately trod the Stage, and acted a new philosophical Romance; without any great Elegance or Applause. And to this day the Motions of the Heavens are, by fabulous *Astronomers*, perplexed with *Eccentricks* and *Epicyles*; and the *Stability and Mobility of the Earth* are strenuously pleaded for on both sides, from the uncertain attestation of *Phænomena*^l. And this is the general Case of *Theories*, in which Men usually proceed, as he would do, who understanding no Language but his own, should undertake to interpret a Book in another; where observing that a few Words up and down corresponded, in Sound and Letters, to the Words of his own Language, he immediately asserts, with Confidence and Assurance, these Words to be of the like signification, (tho they might frequently differ very widely) and thence, by farther comparison, with great Labour and Trial of Wit, and, at the same time, with great Licentiousness, divines the Sense and Meaning of the whole. And just such Interpreters, Philosophers generally are, of the Sense and Meaning of *Nature*, in the grand Volume of the Universe; for every one brings his own *particular Idol*,

ⁱ The Work here mentioned, tho, perhaps, never executed, in the Form of Tables; at least, never published by the Author; may very well have been conceived in his Mind: And whoever desires to have some perception of the thing, may, with due attention, derive it from the Author's Pieces *De Augmentis*, the *Sapientia Veterum*, the *Novum Organum*, and the *Phænomena of the Universe*. But the whole might have appeared to much greater Advantage, if any considerable Progress had been made in the *Secondary Philosophy*, or sixth and last Part of the *Grand Instauration*.

^k See the *Novum Organum*, Part I. Sect. II.

^l See the *Specimen of Animated Astronomy*, SUPPLEMENT IX.

Idol, as it were his Mother-Tongue, to the *History of Nature*; and as soon as he finds any thing sound like it, this he eagerly catches at, and interprets every thing else analogous thereto^m.

4. 'Tis now time we should expatiate ourselves, after handling such prophane and polluted Matters; tho it has been only with a desire of Improving. And we here declare, that all the *Charges* we have brought against the *Philosophers*, fall far short of their Guilt: Tho we do not expect the generality should understand in what manner we have convicted them. But they may be assured, that the Censures pass'd upon them have not the least participation of *Calumny* or *Scandal*: For I have not here, like *Velleius* in *Cicero*; acted the *Declamer*, who lightly touched Opinions, and then threw them aside, without entering into their Merits; much less, done like our modern *Agrippa*, who, indeed, deserves not to be mention'd in a Discourse of this Nature; as being a *trifling Scoffer*, that aims to wrest and make sport with every thingⁿ: But whoever looks intently, and is qualified to see it, will find that, under the *Veil of a feigned Severity*, there are *just and stinging Accusations* couched, contracted to a little compass, and, not without some Address, thrown directly into the Ulcers of the Mischief. And tho they all seem involved and embroiled together in the same Crimes and Guilt; yet I have accused each of them with that only which is peculiar to himself, and of a capital Nature. For the human Mind, swoln with the *Incurfions* and *Observations of Things*, works up, and draws out of them, Errors of various Shapes and Forms: So that *Aristotle*, for example, appears like a tall Plant, of a particular Species; *Plato*, as another of a different kind; and so of the rest.

That the Author has been in earnest with his Characters.

5. But for me to enter into *particular Confutations* of their several Works, would be a heinous Offence, an Injury to the *Fortunes of Mankind*, and consume the Time, destin'd to their Service, in a Conflict with *Shadows*; which may vanish of themselves. Indeed, the only thing required, is to set up the BRIGHT AND SHINING LIGHT OF TRUTH; which may illuminate all the things around it; and in a moment disperse all the Errors and Darknefs with which Mankind are beset^o: For it would be endless to carry weak and sickly Tapers about into all the sculking Holes and Corners of particular Errors and Falshoods.

Avoids more particular Confutations, and why.

6. But notwithstanding what we have said, it must not be supposed, that all which the *Philosophers* above-mentioned have delivered, is perfectly vain and false: For there is no one of them but has sometimes stumbled upon a Truth; and indeed their Errors seem rather owing to their

That some Truths have been discovered by the Ancients.

I 2

great

^m This is properly a Species of *Philosophical Madnefs*. See above, Sect. I. 2. and the *Introduction* to the *Novum Organum*.

ⁿ I suppose the Author has his Eye more immediately upon that Piece of *Agrippa*, entitled *De Vanitate Scientiarum*; a Title as different from his own *De Augmentis Scientiarum*, as the two Persons, and their Abilities.

^o This was the Design of the *Novum Organum*; which the Author had once entitled, *Aphorismi & Consilia, de Auxiliis Mentis, & Accensione LUMINIS NATURALIS*. But as that Work was left imperfect, we have only some Portion of this *Grand Light* held out to us.

great Unhappiness, than to their Ignorance. When *Heracitus* declared, that Men ought to seek for Knowledge, not in the private World of themselves, but in the common external World, he seems to have laid a just Foundation for Philosophy. When *Democritus* attributed immense Variety, and infinite Succession to Nature, he ran counter to nearly all the other Philosophers; who absolutely went down with the stream of their times; enslaved to Custom: and by this Opposition he destroyed both Falshoods, dashing them one against the other; and thus opening a way to Truth betwixt the two Extremes, he happily shewed himself a *Philosopher*. The Numbers of *Pythagoras*, likewise promised some good Event. *Dindamus* the Indian spoke well, when he called Death by the Name of Nature's Enemy. *Epicurus* also is tolerable; tho he disputes but weakly, and with philological Arguments, against the Explanation of *intentional* and *final Causes*. Even the sceptical *Pyrrho*, and the fluctuating *Academicks* (tho confined to scanty Bounds, and behaving themselves to their *Idols* like peevish Lovers, that are always quarrelling, but never part) may be read in the way of Recreation; for whilst others are made to drag their *Anchors*, by their *Idols*; the *Academicks* are only whirl'd round in their Cock-Boat. Nay, *Paracelsus* and *Severinus* make excellent Heralds; and sound the alarm to *Experiments*.

The Difference betwixt Idolatrous Knowledge, and the True.

7. But shall we say that these Men were in possession of *Truth*? They were certainly far from it. 'Tis a good homely Proverb: *That a Hog, tho by rooting the Ground he may make the first Letter of the Alphabet, yet cannot write a Play*. For the *Truth* discovered by Analogy of Knowledge, is widely different from that delivered by the start of an *Idol*: The former is regular, constant and manifold, whilst the other is incongruous, unsteady and single; and the Case is the same in *Works*. Thus the Discovery of *Gun-powder*, had it not been accidental, and a sudden start, but the effect of Reasoning, would not have been single; but accompanied with a Number of other noble Inventions, which fall under the same *Meridian*. Understand the like of other Works and Positions^p. I would therefore require, if any ones *Idol* should in any Point intersect the Truth of the things I have here laid down, that he be not hence conceived the better, nor I the worse of; as 'tis manifest this Difference must proceed from Ignorance, and not from any Analogy of Knowledge^q.

The Writings of the Ancients to be still preserved.

8. After all; we hope no one will conceive our Intention is to condemn the Writings of the *ancient and modern Philosophers to the Flames*^r, or the Service of the *Grocer*. They have still some Use; tho, indeed, but little, and of narrow Extent; very different from that they were designed for, and are at present employed in. To this we may add, that many other *Writings*, of less Fame and Note, are much more useful than those of the Philo-

^p See this prosecuted in the first Part of the *Novum Organum*.

^q This will not be understood, unless the *Doctrine of Idols*, delivered in the *Novum Organum*, be master'd.

^r As Mr. *Hobbs* is said to have done.

Sect. II. more eminent PHILOSOPHERS.

61

Philosophers. The *Ethicks* of *Aristotle* and *Plato* have found numerous Admirers; but the *Moral Observations* of *Tacitus* express Nature more to the Life. But for the particular Uses to be made of these *Writings*; which of them are more serviceable than others; and how small a part of them conduce to the *Interpretation of Nature*, we may shew in due time^f.

9. It may here be ask'd, *Will the Author pretend himself alone to supply the place of all the Philosophers he thus censures and rejects?* He answers candidly, and without Dissimulation, that his sole View is to join Mankind and Things together, in a sacred, legitimate and inviolable Link; that from this Conjunction may proceed a happy *Race of Heroes*, to subdue the infinite Necessities of human Nature; and settle their whole Affairs in a plentiful, peaceful and happy Security^g.

^f See the *Novum Organum*, Part I. *passim*.

^g Some Readers may be at a loss to know what the Author drives at in this Piece, or in what sense to understand him; unless they have been conversant in the rest of his Writings. The Point of View is this; that the *ancient* and *modern Philosophers*, taken in a Body, have miserably mispent their Time, and abused their Talents; without once entering into the high Road of Truth, or the way of making the proper Discoveries, for improving the *Arts* and *Sciences*, that might greatly benefit human Life. This every one may satisfy himself of, by examining what has been done by *Plato*, *Aristotle*, *Hippocrates*, &c. towards discovering the *Art of inventing Arts*; or making Life more happy and agreeable. For who among them has taught the Art of prolonging Life, or spinning the full Thread thereof to its natural Period, free from Diseases, Pain and Sickness; so far, we mean, as the condition of Mortality permits? Who has shewn the way of curing inveterate Diseases, as the *Stone*, the *Gout*, &c? Who has taught us to secure our Habitations from Fire, Inundations, Earthquakes; our Ships from Storms, and perishing at Sea? Who has taught us to predict the Weather, or given us the least Command of it? Who has shewn us a way to supply parched Countries with Water, where natural Springs are denied? Who has shewn us a practical way of governing our Appetites, and correcting our Vices; so as to prevent that Train of Ills which attend Tyranny, Oppression, Superstition, and false Religions? Numerous Instances of this kind might be mentioned, all tending to the accommodation of Life; which Philosophers, as they are called, seem to have overlook'd, or despaired of. But these were the things that employed our Author's Thoughts; and a *Method of procuring Remedies for all human Evils*, seems to have been the one capital thing he aimed at.

S U P.

SUPPLEMENT XI.

Interiora Rerum:

OR,

ESSAYS

UPON

MORAL, OECONOMICAL *and* POLITICAL
SUBJECTS.

P R E

P R E F A C E.

OF all the Author's Works, his Essays appear to have had the greatest Currency; both in his own Life-time, and since. He judg'd the Reason to be, that they came home to Mens Business and Bosoms. And hence he ventured to predict, that the Latin Volume of them, being in the universal Language, might last as long as Books themselves should last. And so, says a modern Well-wisher to his Works, may the English Edition too; if some equal Hand would, once in a Century, repair the Decays of their fleeting Language. Certainly they enter deep into the Nature of Men, and Things; and contain very useful Instructions for the Conduct of civil Life. The Author in Modesty entitles them Essays; but, perhaps, they are in strictness, Aphorisms: for they have a Nerve; a fullness of Matter; and really exhibit the Insides of Things, without foreign Ornament; so as to verify their Latin Title. It should seem, they were rather intended to instruct Men than Children; and, perhaps, there are not many, who clearly perceive their full Scope and Utility. Whence both the Teacher and the Learner had need be intelligent, where these Essays are taught in Grammar-Schools. Possibly they are better adapted to the Use of Students in the Universities; who being come to some ripeness of Judgment, are a little versed in the Ways of Men. The greatest Politicians, or those that are best acquainted with civil Affairs, need not blush to have them found on their Table.

In the present Edition they are divided into the three Parts indicated by their Latin Title; methodized according to their natural Order; collated with the later and fuller Latin Edition; and enrich'd by the Addition of several Pieces, originally written in Latin, by the Author, and never before translated into English.

It may not be improper to advertise, that some Writers have objected to several Particulars in these Essays, from a hasty Consideration of a few obvious Instances; whereas the Author constantly practises the METHOD OF REJECTION; and never admits of his own first Thoughts, unless authorised by his second; or, perhaps, by a more rigorous Trial; viz. the Art of redressing the Infirmities of the Mind, according to the Directions of his *Novum Organum*.

* See his Dedication to the Duke of Buckingham.

† See the Author's Letter to Father Fulgentio.

Interiora Rerum:

OR,

ESSAYS

UPON

MORAL, OECONOMICAL and POLITICAL
SUBJECTS.

SECT. I.

ESSAYS UPON MORAL SUBJECTS.

ESSAY I. Of STUDIES.

1. **S**TUDIES and Reading serve for *Delight*, *Ornament* and *Ability*; for *Delight* in Privacy and Retirement; for *Ornament* in Discourse; and for *Ability* in the Judgment and Direction of Business. Expert Men can execute, and, perhaps, judge of Particulars, singly; but general Counsels, Schemes, and the marshalling of Affairs, come best from the *Learned*. *The Advantages of Learning.*

2. To spend too much time in Studies, is *Sloth*; to use them too much for Ornament, is *Affectation*; and to judge wholly by their Rules, is *per- dantick and unprosperous*. Letters perfect Nature; and are perfected by Experience: For natural Abilities, like Plants, require pruning by Study: and Studies themselves give Direction too much at large, unless bounded by Experience. Crafty Men condemn Studies; simple Men admire them; and wise Men use them: For Letters do not sufficiently teach their own Use; but this is a Wisdom beyond, and above them, gained by Observation.

VOL. II.

K

3. Read

*Directions for
its Use, and
Acquirement.*

3. Read not to contradict and confute; nor to believe, and take upon trust; nor to find matter of Discourse; but to learn, consider, and use a free Judgment. Some Books should be tasted; others swallowed; and some few shou'd be chewed and digested: That is, some Books are to be read only in part; others to be read thorough, tho cursorily; and some few to be read and studied, with Diligence and Attention. Some Books also may be read by Deputy; and Extracts made of them by others: but this should be done only in the less important Subjects, and the meaner sort of Books: Otherwise, *distill'd Books* are like the common *distill'd Waters*; flashy things.

*The different
Effects of dis-
ferent Studies.*

4. Reading makes a full Man; Conference a ready Man; and Writing an exact Man. Therefore, he who writes little has need of a good Memory; he who confers little, has need of a present Wit; and he who reads little, has need of much Cunning, that he may seem to know what he does not. History makes Men wise; Poetry, ingenious; Mathematicks, subtle; Natural Philosophy, deep; Moral Philosophy, grave; Logick and Rhetorick, able to contend: *Abunt studia in mores*.*

*The Defects
of the Mind
remedied by
Studies.*

5. Nay, there is scarce any Impediment in the Mind, but may be removed by suitable Studies; as Diseases of the Body have their appropriated Exercises. Thus Bowling is good for the Stone and Kidneys; Shooting for the Lungs and Breast; gentle Walking for the Stomach; Riding for the Head, &c. So, if a Man's Wit be wandering, let him study Mathematicks; if not apt to distinguish, let him study the *Schoolmen*; if unapt to beat over Matters, and to call up one thing to prove and illustrate another, let him study *Law-Cases*: And thus every Defect of the Mind may have a particular Remedy†.

ESSAY II. OF CIVIL CEREMONIES, and BEHAVIOUR.

*Some degree
of Ceremony
necessary.*

*How to be
acquired.*

1. HE who is only real, had need have a plentiful stock of Virtue; as the Stone had need be rich, which is set without Foil. It is in Praise and Commendation, as in Gains: For as *light Gains make heavy Purse*, by coming thick, whilst large ones come but seldom; so *tender Virtues* procure great Commendation, because in continual Use; whereas the opportunity of exercising any capital Virtue comes but seldom: Whence it adds greatly to a Man's Reputation, and is like *perpetual Letters of Recommendation*, to have discreet and graceful Forms of Behaviour. And to attain these, it almost suffices not to despise them: For thus a Man will observe them in others; and let him trust himself with the rest. For if he endeavour too much to express them, he will lose their Grace; which is to be natural and unaffected‡. Some Mens Behaviour is like a *Verse*; wherein

* Studies turn into Habits, and appear in our Behaviour.

† The Merits of Learning, and Studies, here wrapt up aphoristically, are prosecuted at large in the entrance of the *De Augmentis Scientiarum*. See *Frelim.* §. III. And the Whole of the *De Augmentis* itself is an illustrious Comment upon this Text. The *Helps to the intellectual Faculties* are also touched upon in the *Author's Letter to Sir Henry Saville*, in SUPPLEMENT V.

‡ Direction can go no farther.

wherein every Syllable is measured. How can a Man be equal to great Matters, who subjects his Mind to such trifling Observations?

2. Not to use decent *Ceremonies* at all, is teaching others not to use them again; and so diminishes the Respect due to one's self: Especially they should not be omitted to Strangers, and formal Natures. But to dwell upon them, and stretch them above measure, is not only tedious, but lessens the Credibility and Weight of the Speaker. There is a highly useful way of insinuating effectual and lasting Impressions along with Complements; if a Man have the Address². Among Equals we are to expect Familiarity; and therefore 'tis here proper to keep a little State. Among Inferiors, one is sure of Reverence; therefore 'tis here proper to be a little familiar. He who is too profuse either in Words or Actions, so as to give another an occasion of Satiety, makes himself cheap. To apply ones self to others, is proper; provided it appear to be done out of Respect, and not Facility. 'Tis a good Precept, in seconding another, always to add somewhat of your own: thus if you assent to his Opinion, let it be with some Distinction; if you follow his Motion, let it be on condition; if you take his Counsel, let it be with alledging a farther Reason.

Where Ceremony is most useful.

3. Men should be very cautious of appearing too great Masters of *Ceremonies*: For tho otherwise ever so sufficient, their Enviars will give them that Title, to the disadvantage of their greater Virtues. 'Tis a loss also in Business, to be too full of Respects, or too curious in observing Times and Opportunities. Solomon says, *He that considereth the wind, shall not sow; and he that looketh to the clouds, shall not reap.* A wise Man will make more Opportunities than he finds. Mens Behaviours should be like their Cloaths; not too streight, but free and easy³.

Not to be carried too far.

ESSAY III. Of BOLDNESS.

1. **D***Emosthenes* being ask'd, What was the chief Qualification of an Orator? he answered, *Action*. What next? *Action*. What next again? *Action*. He said this, who knew it best; and had himself, by Nature, no great Advantage in what he recommended. It may deservedly seem strange, that this part of Oratory, which is but superficial, and rather the Qualification of a Player, should be placed so high above those other noble parts, Invention, Elocution, and the rest. The Reason is, human Nature generally participates more of the *Fool*, than of the *wise Man*; and therefore those Faculties are the most prevalent, by which the weaker part of Mens Minds is taken.

Action in Oratory compared to Boldness in Business.

There is more than one definition to this word 'action'

The Case of *Boldness in civil Business* is extremely like, and parallel to this. What is the first Qualification in Business? *Boldness*. What the second and third? *Boldness*. And yet Boldness is the Child of Ignorance

K 2

² An over-modest Man is, perhaps, incapable of practising this *Art*; which seems founded in making another well pleased or satisfied with himself.

³ See more upon this Subject in the *De Augmentis Scientiarum*, §. X. 2. Of CIVIL DOCTRINE.

and Baseness; far inferior to other Parts of *Civil Prudence*^b: nevertheless, it fascinates, and leads those captive, who are either shallow in Judgment, or weak in Courage, (which are the many) and, even prevails over wise Men, at their weak times: whence we see it has done Wonders in popular States; but less with Senates and Princes. Nay, bold-spirited Men perform more at their first entrance upon Action, than afterwards: For *Boldness* does not stand to its Promise.

The Bold are
Empiricks in
Policy.

2. Surely, as there are Empiricks for the natural Body; so there are Mountebanks for the political Body: Men that undertake the most difficult Cures, and have, perhaps, been lucky in two or three Experiments; but wanting the Grounds of the *Science*, presently fail. However, you shall often see your bold Fellows work *Mahomet's* Miracle, and go to the Mountain, when the Mountain will not come to them; that is, when they have promised great Matters, and failed most shamefully, yet if they have the *Perfection of Boldness*, they will slight it over, turn themselves round, and there's an end on't.

And the Ri-
dicule of the
Wise.

3. Certainly bold Persons are a Sport to Men of Judgment: and even to the Vulgar, *Boldness* has somewhat of the *ridiculous*. For if Absurdity be the Subject of Laughter; great *Boldness* is seldom without some Absurdity. Especially, 'tis a great Pleasure to see a bold Fellow out of countenance; for that necessarily puts his Face into a most shrunk and wooden Posture. In bashful Persons, the Spirits go and come a little; but in bold Men, upon the same occasions, they stand like a *Stale at Chess*, where it is no Mate; and the Game cannot proceed^c.

The proper
Use of Bold-
ness.

4. It deserves to be consider'd, that *Boldness* is ever blind; for it sees not Dangers and Inconveniences: Whence 'tis bad in Counsel, tho' good in Execution. The right Use of bold Persons therefore is, that they never command in chief; but serve as seconds, under the Direction of others. For in Counsel, 'tis good to see Dangers; and in Execution, not to see them; unless they are very great^d.

ESSAY IV. Of SIMULATION, and DISSIMULATION.

The Use of
Dissimulation

1. **D**issimulation is the *Civil Art* in Epitome; and a faint kind of Policy: For it requires a strong Head, and a strong Heart, to know when to tell the Truth, and dare to do it: whence the weaker sort of *Politicians* are the greatest Dissemblers. We must, therefore, carefully distinguish betwixt the *Civil Arts* and *Presences*^e. Thus, if a Man has the happy Penetration and Perspicuity to discern what should be laid open;

^b See the *De Augmentis Scientiarum*, §. XXI. Of *Civil Prudence*.

^c Observe, that in this Incident at *Chess*, the Game is not won; only the Partner cannot stir: Which aptly expresses the Case of a bold Man confounded.

^d For more upon this Subject, see *De Augment. Scientiar.* §. XX. Of *ETHICS*, or *MORALITY*.

^e See Prelim. to the *De Augment. Scientiar.* §. III. 10, 11, 12, &c. See also, the *Political Mythology of the Ancients*, in the *Sapientia Veterum*.

open; what kept secret; what should be shewed in Half-lights; and to whom, and when; (which are the true *Political* and *Civil Arts*, as *Tacitus* justly terms them) a Habit of *Disimulation* would be only a Hinderance. But if a Man cannot attain to this degree of Judgment and Discretion; 'tis generally best to be close, and dissemble. For where there is no choice in Particulars, 'tis the safest to proceed warily in the general; as they walk softly, who are dim-sighted. Certainly, the ablest Men have been open and frank in their Dealings, and had the Reputation of Punctuality and Veracity; but then, like well-manag'd Horses, they knew where to stop or turn. And if at any time they practis'd *Disimulation*, when the Case required it; their former Character of free and open Dealing render'd them perfectly invisible^f.

2. There are three Degrees of veiling ones self. The first is *Taciturnity*, whereby a Man keeps his Mind to himself, without discovering his Opinion to others. The second is *negative Disimulation*; when a Man designedly drops Intimations that he is not what he is. And the third is *affirmative Simulation*; when a Man openly and expressly feigns and pretends to be what he is not.

Three kinds of Disimulation.

3. As for the first of these; viz. *Taciturnity*; 'tis the Virtue of a *Confessor*: and certainly the secret Man hears many *Confessions*. For who will open himself to a Blab? But the Reputation of Secrecy, easily unlocks the Minds of others. And as *Confession* is not for wordly Use, but for the Ease of the Conscience; so silent Men, for the same reason, come to the Knowledge of many things, while others rather discharge their Mind, than impart it. In short, *Mysteries are due to the Silent*. Besides, Nakedness is uncomely as well in the Mind as the Body: and not to be too open procures no small Reverence to Mens Counsels and Actions. On the other hand, great *Talkers* are commonly vain and credulous: For he who talks what he knows, will also talk what he knows not. Let it therefore pass for a Maxim, that a *Habit of Taciturnity is both a political and a moral Virtue*. Add to this, that a Man's Face should not contradict his Tongue. For to betray ones self by the Countenance or Gesture is a great Weakness; and a thing frequently more observed and credited than a Man's Words.

viz. Taciturnity.

For the second, which is *Disimulation*; it often necessarily follows upon *Taciturnity*: So that to be secret, one must, in some degree, dissemble. For Men are too cunning to permit, that any one should preserve an Indifference; without inclining the Balance on either side. They will so beset a Man with subtle Questions, draw him on, and sift him, that, without an absurd Silence, he must shew an Inclination one way or other; or else they will conclude as much from his Silence, as if he had spoke. And for Equivocations and Ambiguities, they cannot hold out long. Whence no Man can be secret, without some degree of *Disimulation*; which is, as it were, the Verge of Secrecy.

Disimulation.

5. But for the third Degree, which is *Simulation*, or *false Profession*; I hold it more culpable, and less politick; unless it be in great and extraordinary

And Simulation.

ordi-

^f This is a great Secret in Civil Policy; and the Moral of *Plato's Helms*

ordinary Matters. Hence a constant Custom of *false Profession* is a Vice, arising either from a natural Fearfulness, or a Mind that labours under some great Defect: which absolutely requiring to be disguised, causes *Simulation* to be practised in other things also; that the Habit may be kept up.

The Advan-
tages of Si-
mulation and
Diffimulation

6. The Advantages of *Simulation* and *Diffimulation* are chiefly three. The *first* is, to lay Opposition asleep; and to surprize. For to publish ones Intentions is sounding the Alarm to Opposers. The *second* is, to secure an honourable Retreat; for to engage ones self by an open Declaration, is to be wedged by the Dilemma of going through or being foiled. The *third* is, to discover the Designs of another: For he who divulges his own Designs will seldom be stopped; but rather urged to go on, whilst the Hearer turns this freedom of Speech, to freedom of Thoughts. It is a shrewd Proverb of the Spaniard; *Tell a Lie, and you find the Truth*. As if *Simulation* were the Key of Discovery.

Their Disad-
vantages.

7. There are also three *Disadvantages* to balance the former. For, (1.) *Simulation* and *Diffimulation* commonly argue Timidity; which clips the Wings of Business. (2.) They puzzle and perplex the Minds of many, who, perhaps, would otherwise co-operate: which makes a Man walk almost alone to his own Ends. But, (3.) the greatest *Disadvantage* is, that they deprive a Man of a principal Instrument of Action; *Trust*. The best Composition is, to have the Reputation of *Veracity*; the Habit of *Taciturnity*; the seasonable Use of *Diffimulation*; and the Faculty of *Simulation*, when it is necessary^h.

ESSAY V. OF FRIENDSHIP.

Whether Love
of Solitude be
a Divine or
Brutal Virtue.

IT were difficult to put more Truth and Falshood together, in few Words, than in that Saying, *Whoever delights in Solitude is either a wild Beast, or a God*. For 'tis true, that a natural and secret Hatred of Society, has somewhat of the Savage: But false, that it should have any Mark of the Divine Nature; except it proceed not from a Love of Retirement, but a Desire to sequester ones self for the sake of sublimer Contemplations. But little do Men perceive what *Solitude* is; and how far it extends. For a Crowd is no Company: Mens Faces are but like Pictures in a Gallery; and Talk but a tinkling Cymbal; where there is no Love. This is intimated by the Latin Proverb, *Magna Civitas, Magna Solitudo*ⁱ. For in large Towns, Friends and Acquaintance are more dispersed, and hold Conversation less than in smaller Neighbourhoods. We may go farther, and

ⁱ Both the Latin and the English are here somewhat perplexed, or ambiguous. The Case intended seems to be a Case of *Simulation*; or *false Profession*; when one Person opens himself to another, supposing him his Friend, which Opinion the other countenances, till he has drawn out the Secret, and then turns it to his own Advantage.

^h See the Preliminaries to the *De Augment. Scient.* §. III, and the *De Augmentis* in self, §. XX. Of ETHICKS, or MORALITY.

ⁱ Great Cities are wide Deserts.

and truly assert, that it is a more miserable *Solitude*, to want true Friends: without which the World is but a Wilderness. And in this sense also of *Solitude*, whoever in his Nature and Affections is averse to *Friendship*, participates of the *Brute*.

2. A principal Advantage of *Friendship* is the ease and discharge of that Anxiety, and fullness of Heart, which Passions of all kinds induce. Those Diseases of the Body that proceed from Stoppage and Suffocation, are the most dangerous; and the case is much the same in Disorders of the Mind. *Sarza* is said to open the *Liver*; *Steel* the *Spleen*, &c. but nothing opens the Heart like a true Friend; to whom we may impart, in the way of *Civil Confession*, our Grievs, Joys, Fears, Hopes, Suspicions, Cares, Counsels, and whatever lies upon the Heart to oppress it. 'Tis strange how highly Monarchs prize this Fruit of *Friendship*; so as often to purchase it at the hazard of their Safety and Greatness. For Princes from the height of their Fortune, above that of their Subjects, cannot reap this Advantage, but by raising some Person to be, as it were, their Companion or Equal; which frequently has its Inconvenience. Modern Languages give such Persons the Name of *Favourites* or *Minions*; as if it were matter of Grace and Favour; but the *Roman* Title, *Participes Curarum*, expresses their true Use and Cause: for to have them *Partners in their Cares*, is that which ties the Knot. And this has been practised, not by weak and effeminate Princes only, but also by the wisest and most political; who, after the manner of private Persons, have often joined to themselves some of their Servants, under the common Name and Notion of *Friends*. That mystic Precept of *Pythagoras* is dark, but just; *Eat not the Heart*. Certainly, to give the thing a harsh Phrase, those who want Friends to open their Grievs to, are Canibals of their own *Hearts*. This communicating of ones self to a Friend, has two contrary Effects; for it doubles Joys, and halves Grievs: Since no Man imparts his Joys to a Friend, but rejoices the more; nor his Grievs, but grieves the less. For, as in *Bodies*, Union strengthens and cherishes all natural Actions; but weakens and blunts all violent Impressions; the case is the same in *Minds*.

The Advan-
tages of
Friendship;
viz. easing
the Mind.

3. The second Advantage of *Friendship* regards the Understanding; as the former does the Affections: For as *Friendship* makes Serenity in the Affections; so it makes Day-light in the Understanding. And this holds true, not only of *faithful Counsel*; but whoever has his Mind clouded, or overcharged with Thought, his Understanding clears up, and makes, as it were, a fair Day, by communicating freely, and discoursing with another: For, by this means, he revolves his Thoughts more easily, marshals them better, sees how they look when turn'd into Words, and grows wiser, by an Hour's Conversation, than by a Day's Meditation. It was justly said by *Themistocles*, that *Speech is like Tapestry unfolded*, when the Imagery appears distinct; but *Thoughts, like Tapestry in the Bale*, where the Figures are rolled up together. Nor is this second Advantage of *Friendship*, viz. the opening of the Understanding, restrained to such Friends,

Improving
the Under-
standing.

as are able to advise; but even without this, a Man thus learns of himself, brings his own Thoughts to light, and whets his Wit as against a Stone, which has itself no Edge. In short, a Man had better impart himself to a *Statue*, or a *Picture*, than suffer his Thoughts to smother, in Silence. But to compleat this second Advantage of Friendship, *faithful Counsel* is likewise required from a Friend. *Heraclitus* said well, *Dry Light is the best*. And, certainly, the Light that a Man receives in the way of Advice from another, is drier and purer than what comes from his own Understanding and Judgment; which is ever infused and drenched in his own Affections. Whence the Advice of a Friend differs as much from a Man's own Opinion, as the Advice of a Friend from that of a Flatterer: For there is no greater Flatterer than a Man to himself; and no surer Remedy against Self-Flattery, than the Liberty of a Friend.

This Counsel of two kinds, regarding, (1.) Morality.

4. Counsel is of two kinds; and regards either *Morality*, or *Business*. For the *first*; the best Preservative of the Mind, is the faithful Admonition of a Friend. Strict Self-Examination is sometimes too piercing and corrosive a Remedy: Reading Books of Morality, is a little flat and dead: Observing our own Faults in others, is sometimes unsuitable to our Case: The best Medicine, for operation and taking, is friendly Admonition. 'Tis strange, what gross Errors and Absurdities are committed, especially by the Great, for want of a friendly Admonisher; to the disadvantage both of their Fame and Fortune. For they are as Men, *that behold their Face in a Glass, and presently forget their Features*^k.

And (2.) Business.

5. As for *Business*; 'tis an ancient Saying, that *two Eyes see more than one*. 'Tis also certain, that a By-stander often sees more of the Game than a Player; and that a *Musquet is fired truer upon a Rest, than upon the Arm*; tho some lofty Natures think themselves all in all. But this is certain, whatever may be alledged to the contrary, that *Counsel is what directs and settles Business*. But if a Man think to take Counsel piece-meal, and to ask Advice of one, in this Business, and of another in that; it may be better than not to ask Advice at all; but he runs two Risques; viz. (1.) that of not being faithfully advised: For 'tis rare, unless from a perfect and entire Friend, to receive Advice that shall not be distorted to the Ends of him who gives it: And (2.) that the Advice he thus receives from different Persons, tho ever so well intended, shall often prove pernicious, or a Mixture of Remedy and Inconvenience; like consulting a Physician versed in the Cure of the Disease, but unacquainted with the Constitution; who may therefore effect a present Cure, and injure the Health in some other respect. But a Friend fully acquainted with our Case, will be cautious of falling upon farther Inconveniences, whilst he promotes the present Business. Depend not, therefore, upon *scatter'd Counsels*; for they will rather distract and mislead, than direct and settle.

The third Advantage of Friendship; viz. Assistance.

6. After these two noble Advantages of *Friendship*, viz. Peace in the Affections, and support of the Judgment, comes that which is like the

Pome-

^k See the *Essay upon Counsel, or Advice*.

Pomegranate, full of Kernels; *viz. Assistance, and bearing a Part in all Actions and Occasions.* And here the most expeditious way of justly representing the numerous Uses of Friendship, were to enquire how many things there are, which a Man cannot well do for himself; whence it will appear but a moderate Saying of the Ancients, *that a Friend is a second Self*: For to judge truly, a Friend may be more than ones self. Men are mortal, and often die without finishing what they principally affected; as the bestowing of a Child; the finishing of a Work, and the like. If, therefore, a Man has a true Friend, he may rest secure, the Care of these things will be continued after him: So that he has, as it were, *two Lives in his Desires.* Man is confined to a Body, and that Body confined to a Place; but where Friendship is, all the Offices of Life are performable, either by himself or his Deputy; that is, his Friend. How many things are there which a Man cannot, with any Grace, or Decency, say or do for himself? A Man can scarce alledge his own Merits with Modesty; much less extol them: He cannot sometimes submit to supplicate, petition, &c. But all these things are graceful in the Mouth of a Friend. So again, a Man stands in many Relations, which he cannot divest himself of. He cannot speak to his Son, but as a Father; to his Wife, but as a Husband; to his Enemy, but with Reserve: Whereas a Friend may speak to them all, as the Case requires, without the same Respect of Persons. It were needless to enumerate all the things of this kind. We have given the *Rule*: And when a Man cannot act his Part in his own Person, and has no Friend to appear for him, 'tis the better way to quit the Stage.

ESSAY VI. *Of the MORAL DUTY of a JUDGE.*

1. JUDGES should remember, that their Office is to interpret the Law, The general Duty of a Judge. not to make it: otherwise, their Authority would be like that claimed by the Church of *Rome*; which, under pretence of interpreting Scripture, sometimes adds, alters, pronounces what is not found, and, under the colour of *Antiquity*, introduces *Novelty*. Judges should rather be learned than ingenious; reverend than affable; advised than confident. Above all things, Integrity is their Portion and proper Virtue. *Cursed*, says the Law, *is he that removeth the ancient Land-Mark.* Certainly, the Mislayers of a *Mark-Stone* is to blame: but the unjust Judge is a capital Remover of Land-Marks, when he determines amiss of Lands and Properties. One unjust Sentence is more pernicious than many bad Examples: For these only corrupt the Stream; but that the Fountain. So *Solomon* says, *a righteous man falling before the wicked, is as a troubled Fountain, and a corrupt Spring.*

2. The Office of a Judge may relate, (1.) to the Parties; (2.) the His Office divided, as it relates to the contending Parties, or Offenders.
Pleaders; (3.) the Clerks and inferior Officers; and (4.) to the Sovereign or State.
First, for the Parties. There are those, says the Scripture, *that turn judgement into wormwood*; and surely there are those that turn it into *Vinegar*: For

Injustice makes it bitter, and Delays make it sour. The principal *Duty* of a Judge, is to suppress Force and Fraud; the former whereof is the more pernicious when open; the latter, when close and disguised. Add to this, that *contentious Suits* should be quickly ejected, as the *Surfeit of Courts*. A Judge should prepare his Way to a just Sentence, after the Example of God, by *raising Valleys*, and *levelling Hills*. So when a high hand appears on either side, by a virulent Prosecution, Stratagems, Combination, Power, great Patronage, Disparity of Counsel, &c. the Virtue of a Judge appears in bringing all to an Equality; that he may found his Judgment as upon level Ground.

3. Violent Purging forces away Blood; and when the Wine-press is hard wrought, it yields a harsh Juice, that tastes of the Stone. Judges should therefore avoid hard Constructions, and strain'd Inferences; for there is no worse Torture than the Law upon the Rack. Especially in *penal Laws*, let them be careful, that those meant for Terror, be not turned into Rigour; and bring upon the People that Shower of which the Scripture says, *it shall rain Snares upon them*: For penal Laws, executed in their Rigour, are like a *Shower of Snares* upon a People. Let such Laws, therefore, if they have slept long, or are grown unsuitable to the present Time, be, by prudent Judges, restrained in the Execution. A Judge must regard Times as well as Things. Judges, in capital Causes, should, as far as the Law allows, *in the midst of judgment remember mercy*; and cast a severe Eye upon the Offence, but an Eye of Mercy upon the Offender.

(2) 4. Secondly, for the *Advocates* or Pleadors: Patience and Gravity in hearing Causes is an essential Part of Justice; and a loquacious Judge is no well-tun'd Cymbal. 'Tis not commendable in a Judge over-hastily to seize what might in due time come better from the Council; or to shew a quickness of Thought in cutting Evidence and Pleadings too short; or to anticipate Information, even by pertinent Questions. The Office of a Judge upon the Bench, is (1.) to direct the Course of the Evidence; (2.) to moderate the Length, Repetition, or Impertinence of Speeches in the Council, and Witnesses; (3.) to sum up, select, and compare together the material Points of the Evidence; and (4.) to give Sentence. Whatever goes beyond this, is too much; and proceeds either from Ostentation, fondness for Speaking, impatience of Hearing, weakness of Memory, or want of sedate and equable Attention. 'Tis strange to observe how frequently the Boldness of Advocates prevails with the Judge; who is to imitate God, whose Seat he holds, in curbing the presumptuous, and erecting the humble. But 'tis still stranger, that Judges should have manifest Favourites among the Council: For this must needs enlarge such Councils Fees, and give suspicion of Corruption, and indirect ways of coming at the Judge. When Causes are judiciously and fairly pleaded, some Commendation and Notice is due from the Judge to the *Advocate*; especially on the losing side: for this both keeps up the Client's good Opinion of his Council, and renders him less conceited of his Cause. There is likewise due to the Publick a modest Reprehension of Advocates; where there is crafty

To the *Advocates* or *Council*.

crafty Instruction, gross Neglect, slight Information, indecent Pressing, or a too bold Defence. And let not the Council at the Bar interrupt the Judge; nor artfully bring on a new Pleading of the Cause after Sentence is given. On the other hand, let not the Judge meet the Cause half way; nor give occasion for the Client to complain that his Council and Witnesses were not heard.

5. *Thirdly, for Clerks and Officers:* The Seat of Justice is sacred; therefore not only the *Bench*, but the Ranges, and Precincts thereof, should be without Scandal and Corruption. *For as grapes are not gathered of thorns, nor figs of thistles;* so neither can Justice yield a sweet Fruit among the Briars and Brambles of catching and rapacious Clerks and Officers. There are four pernicious Attendants of Courts; viz. (1.) *Sowers of contentious Suits*; who make a fat Court, and a lean People. (2.) *Sticklers for the Jurisdiction of Courts*; who, not like Friends as they would seem, but Parasites of the Court, swell her Pride for their own Advantage. (3.) *Perversers of Justice*; who may be accounted the *left hands* of Courts, and are Persons full of Turns, Shifts, and Devices; whereby they pervert the plain and direct Courses of Courts, and bring Justice into oblique crooked Ways and Labyrinths; and (4.) *Rapacious Exactors*; who justify the common comparison made of Courts to a Bramble Bush; whereto the Sheep flying for shelter in bad Weather, leave part of their Fleece behind them. On the other side; a veteran Clerk, versed in Precedents, exact in Registering, and diligent in the Business of the Court, is an excellent Finger of a Court; and often points out the Way to the Judge himself.

(3)
To the Clerks
and Officers.

6. *Fourthly, for the Sovereign or State:* Judges ought, above all things, to remember the Conclusion of the *Roman twelve Tables*, *Salus populi suprema lex*^{*}; and that *Laws*, unless in order to that End, are captious things; and Oracles ill inspired. 'Tis therefore happy for the People, when Kings or States frequently consult with Judges; and again, when Judges often consult with Kings or States: the one, when matter of Law arises in business of State; the other, when State-Considerations arise in matter of Law. For it often happens, that a Case of *Meum* and *Tuum*, may in its Consequence extend to Reasons of State. By extending to Reasons of State, I understand not only what regards the Rights of the Crown; but also whatever may introduce a dangerous Innovation, an unsafe Precedent, or manifestly oppress a great number of People. And let no weak Judgment imagine, that just Laws and true Policy, have any Opposition: For they are like the Spirits and Nerves; the one moves within the other. Let Judges remember, that *Solomon's Throne* was on both sides supported by Lions: let them be Lions, but Lions under the Throne; and cautious of infringing or opposing any part of the Royal Prerogative. To conclude; let not Judges be so ignorant of their own Right and Prerogative, as to think themselves denied a principal part of their Office; viz. a sound and

(4.)
To Sovereign
or State.

L 2

prudent

* *The Good of the People is the Supreme Law.*

¹ See more upon this Subject in the *De Augmentis Scientiarum*. Sect. XX. and again in the Author's *Speeches*. SUPPLEMENT IV.

prudent Use and Application of the Law: For they may remember that the *Apostle* says of a greater Law than the human; *We know that the Law is good, if a man use it lawfully*¹.

ESSAY VII. Of FAME, or RUMOURS.

The Poetical
Description
and Origin
of Fame.

1. **T**HE Poets make *Fame* a Monster: They describe her on one side with great Finery and Elegance; but sententiously on the other. They say, how many Feathers she has, so many Eyes lie underneath; so many Tongues; so many Voices; so many Ears. This is a Flourish, but followed with excellent Metaphors; as that she gathers Strength in going; that she walks upon the Ground, yet hides her Head in the Clouds; that in the day-time she sits upon a Watch-Tower, and chiefly flies by Night; that she mixes things done, with things not done; and that she is a Terror to great Cities. Above all, they tell us, that the Giants, who made War against *Jupiter*, being destroyed by him; their Mother, the Earth, incensed thereat, brought forth *Fame*, by way of Revenge. For Rebellions, here denoted by the Giants, and seditious Fames, and Libels, are Brothers and Sisters; Male and Female^m.

The Subject
of Fame im-
portant in
Politicks.

2. Now to tame this Monster, bring her to feed at hand, govern her, and flie her at other ravenous Fowl, were worth the Endeavour. To speak seriously, and without a Metaphor, there is not in all Politicks a Subject less handled, than this of *Fame*. It should therefore be enquired; (1.) what are false Fames; (2.) what true Fames; (3.) how they may best be discovered; (4.) how sown and rais'd; (5.) how spread and multiplied; and (6.) how check'd and laid deadⁿ.

The great
Effects of
false Fames.

3. *Fame* is so powerful, that there is scarce any great Action wherein it has not some considerable Share; especially in War. *Mucianus* ruin'd *Vitellius* by a *Fame* he had spread, that *Vitellius* purposed to remove the Legions of *Syria* into *Germany*; and the Legions of *Germany* into *Syria*; whereby the Legions of *Syria* were violently inflamed. *Julius Caesar* took *Pompey* unprovided, and laid asleep his Industry and Preparations, by a *Fame* he cunningly gave out, that *Cæsar's* own Soldiers loved him not; and being wearied with the Wars, and laden with the Spoils of *Gaul*, would forsake him as soon as he came into *Italy*. *Livia* settled all things for the Succession of her Son *Tiberius*, by continually giving out, that her Husband *Augustus* was upon the Recovery. And 'tis usual with the *Bashaws* to conceal the Death of the *Grand Signior* from the *Janizaries*; to prevent their sacking of *Constantinople*, &c. *Theμιστοcles* made *Xerxes* pull out of *Greece*, by spreading a Rumour, that the *Grecians* purposed to break down his Bridge of Ships, which he had made across the *Hellaspont*. There are

¹ See more upon this Subject in the *De Augment. Scientiar.* Sect. XX. and again in the Author's Speeches. SUPPLEMENT IV.

^m See the *Fable of Persus*, explained in the *De Augment. Scientiar.* Sect. II.

ⁿ Only the first of these Heads is here touch'd upon: The Prosecution of the rest being, perhaps, purposely omitted; that it might not lay some Secrets of Government too open. See the *De Augment. Scientiar.* Sect. XXVI.

are thousands of Examples to the same purpose. Let all wise Governors therefore have as careful a watch over Fames and Rumours, as they have over Actions and Designs themselves^o.

ESSAY VIII. Of VAIN-GLORY, or OSTENTATION.

1. **I**T was elegantly feigned of *Aesop*, that a Fly sitting upon the Axle-tree of a Chariot, cry'd out to herself, *What a Dust do I raise?* For thus certain vain and empty Persons, if they touch but a Business, imagine themselves prime Movers; tho the Motion be either spontaneous, or excited by greater Means. The vain-glorious are always quarrelsome; for Ostentation is grounded on Comparison; and Men of this Cast must needs be violent, in order to effectuate their Boastings: but they cannot be silent, and therefore commonly effect nothing; according to the French Proverb, *Beaucoup de Bruit peu de Fruit*^p.

The Vanity of Boasters.

2. Such Men, however, may sometimes have their Use in Life: For where a Reputation is to be raised, or an Opinion to be spread, whether of Virtue or Power, they make excellent Trumpeters. Again, Lies on both sides may be sometimes highly serviceable; as when an Agent, to engage two Princes in a War against a third, severally exaggerates the Forces of both; or as when he who goes between two, raises his own Credit with both, by pretending greater Power than he has with either. In these and the like Cases it often happens, that somewhat is produced out of nothing: for Lies are sufficient to cause Opinion; and Opinion brings on Action and Substance^q.

The Use of the Vain-glorious, in civil Life.

3. In Commanders also, and Gentlemen of the Sword, *Vain-glory* is of use: For as Iron sharpens Iron, so Soldiers sharpen and excite each others Courage by Boasting and Ostentation. Again, some Intermixture of vain-glorious Tempers puts Life into Business; and makes a fit Composition in grand Enterprizes, and hazardous Undertakings. For Men of solid and sober Natures have more of the Ballast than of the Sail.

Vain-glory in martial Men.

4. For Learning; the Flight of its Reputation will be slow, without some Feathers of Ostentation. They who write Books upon the *Contempt of Glory*, still add their Names in the Title. Even *Aristotle*, *Socrates* and *Galen*, were Boasters^r. And, certainly, *Vain-glory* greatly contributes to spread a Man's Fame: and even Virtue is less beholden to human Nature for her Character, than to herself. The Fame of *Cicero*, *Seneca*, and *Pliny*, would scarce have continued till now, at least not so lively, had it not been joined with some degree of Vanity and Ostentation in themselves: For

In the learned.

^o In order to supply the Deficiency of this Essay; see the *De Augment. Scientiar.* Sect. XXVI. and the third Section of the *Sapientia Veterum*.

^p Great Cry and little Wool.

^q Here is a Foundation laid for the *Doctrine of Lies*, a Subject little touch'd upon; tho of great Importance in *Social, Civil and Political Life*.

^r See SUPPLEMENT X.

For Ostentation is like Varnish, that makes Wood not only shine, but last.

*The prudent
Ways of
shewing ones
self to Ad-
vantage.*

5. By *Vain-glory* and *Ostentation* I do not here understand the Talent which *Tacitus* assigns to *Mucianus*, of shewing all our Words and Actions to Advantage; which is not the Effect of Vanity, but of Art and Prudence, accompanied with a certain Greatness: And in the Persons who seem by Nature form'd thereto, this is not only a graceful, but a winning and happy Accomplishment. For genteel Excuses, prudent Concessions, and even Modesty itself well governed, are but *Arts of Ostentation*. And among these Arts, there is none more successful than that mentioned by *Pliny*; viz. *liberally to praise those Excellencies in others, for which ourselves are eminent*¹.

*Summary of
the Whole.*

5. The *vain-glorious* are the Scorn of wise Men; the Admiration of Fools; the Prey of Parasites; and the Slaves of their own Vanity².

ESSAY IX. Of PRAISE:

*Praise of the
Vulgar often
false.*

1. PRAISE is the Reflection of Virtue; and, like Light, participates of the reflecting Body. If it proceed from the Herd, it is commonly false; and rather attends the Vain, than the Virtuous: for the Vulgar have no feeling of many eminent Virtues. The lesser ones extort their Praise; the middle ones raise their Wonder; but of the highest they are quite insensible. Appearances of Virtues strike them most. Hence Fame is like a River, that bears up things light and tumid; but sinks those that are ponderous and solid. But if Persons of Judgment and Worth concur with the Vulgar; it is then *that a good Name becomes as precious Ointment*; diffuses itself around; and long continues in Vigour: For the Odours of Ointments are more durable than the Odours of Flowers.

*The false
Colours of
Praise.*

2. Praise has so many false Colours, that a Man may justly suspect it. Some Praises proceed merely from Flattery. The common Flatterer has his general Complements, that serve every Man alike; the cunning Flatterer will exactly copy that arch Flatterer, ones self; and lay his Praise where ourselves believe it due: but the impudent Flatterer will bear you out, that your very Defects are the Virtues which both himself and you are conscious you have not.

*The Kinds of
Praise.*

3. Some Praises proceed from Good-will, join'd with Respect. This is a Form of Civility due to Princes and great Personages; which, by painting them well, humbly shews them what they should be. Some Men are praised maliciously, with a Design of raising Envy and Jealousy against them: whence it was proverbial among the *Grecians*, that he who was praised to his Disadvantage, would have a Pimple rise upon his Nose; as we say, a Blister will rise upon the Tongue that tells a Lie.

4. Genteel

¹ See the *De Augmentis Scientiarum*. Sect. XXV.

² They are the Slaves of their own Vanity, in thinking themselves sometimes obliged to attempt what they have so often boasted.

4. Genteel and moderate Praise, seasonably bestowed, has a great Effect. *The good Effect of seasonable and moderate Praise.* Solomon says, *he that praises his friend aloud, rising early, it shall be to him no better than a Curse* *. To magnify either Man or Matter above measure, stirs up Contradiction, procures Envy, and exposes to Contempt.

5. To praise ones self is indecent; unless in very extraordinary Cases: *How Praises but a Man may praise his Office, his Profession, or his Studies, with a tolerable Grace, and some kind of Magnanimity.* St. Paul, when he boasts of himself, often interlaces, *I speak as a fool*; but of his Calling he says, *I will magnify my Apostleship*.

ESSAY X. OF HONOUR and REPUTATION.

1. **T**HE just Means of acquiring Honour and Reputation, is for a Man to display his own Virtues and Abilities to advantage: For those who court and hunt after Fame in their Actions, are commonly much talk'd of, but inwardly little admired. And those again who cloud their Virtue in shewing it; are not esteemed equal to their Merit. *The true Means of procuring Honour.*

2. For a Man to undertake and execute a Matter that was never attempted before, or else attempted and deserted; or that has been effected, but not in the best and happiest manner; procures him more Honour, than it would to accomplish a Matter of much greater Difficulty or Moment, wherein he is but a Follower. And if a Man so blend his Actions, as in some one or other of them to please all Factions, the Consort will be the fuller. *The popular Means.*

3. He is an ill Husband of his Honour, who enters upon any Action, the failing wherein may discredit him more than the carrying it through could grace him. Honour acquired by outshining another has the quickest Reflection; like a Diamond cut with Facets *. Therefore let a Man endeavour to excel Competitors in Honour, by out-shooting them in their own Bow. Discreet Followers and Familiars contribute much to Reputation. Envy, that Canker of Honour, is best distinguished by appearing to seek Merit rather than Fame; and by attributing Successes rather to Providence and Felicity, than to a Man's own Virtue or Policy *. *Directions for acquiring Honour.*

4. The Degrees of sovereign Honour are thus justly marshall'd. First come Founders of Empires; such as *Romulus, Cyrus, Caesar, Ottoman, Ismael*. In the second place come *Legislators*; who are also called *second Founders*, or perpetual Princes; because they govern by their Laws, after their own Decease: such were *Lycurgus, Solon, Justinian, Edgar, &c.* In the third Place come *Deliverers*, or Preservers of their Country; such as put an End to long Civil Wars, or free their Countries from Tyrants, or Servitude to Strangers; as *Augustus Caesar, Vespasian, Aurelian, Henry the Seventh*. *The Degrees of Supreme Honour.*

* See this Aphorism explained in the *De Augmentis Scientiar.* Sect. XXIV. 36.

* i. e. Brilliant-cut.

* See *De Augmentis Scientiar.* Sect. XXV.

Seventh of *England*, &c. In the fourth Place come *Defenders*, or *Enlargers of Empire*; such as in honourable Wars extend their Territories, or make a noble Defence against Invaders. And in the last Place, come the *Fathers of their Country*; who reign justly, and make their People happy.

The Degrees
of inferior Ho-
nours.

5. Degrees of Honour in Subjects are first, *Partakers of the Cares of Princes*; or those on whom Princes discharge the Weight of their Affairs. The next are great *Leaders*; such as supply the Places of Kings, and perform capital Service in War. The third are such *Favourites* as prove a Solace to the Sovereign; and harmless to the People. And the fourth, such as hold great Offices under Princes; and execute them with Prudence and Justness.

A rare Degree
of Honour.

6. There is likewise an Honour, which, tho rare, may be reckon'd among the greatest; viz. of such as devote themselves to Death or Danger, for the Good of their Country; as did *Regulus*, and the two *Decii*.

ESSAY XI. Of ADVERSITY.

The lofty Say-
ing of Seneca
upon Adver-
sity.

1. **I**T was a lofty Saying of *Seneca*, and in the Stoical Manner, that the Advantages of Prosperity are to be wish'd; but the Advantages of Adversity to be admired. Certainly, if it be justly said, that Miracles are Conquests over Nature, these appear most in Adversity. There is still a sublimer Saying of the same Author, and too sublime for a Hea-then; viz. That it is true Greatness, to have the Frailty of a Man, and the Security of a God. This Saying might have suited better with Poetry; where Hyperboles are more allowable. And indeed the Poets have been busy with it; for 'tis in effect the thing figured out in that strange Fiction of the ancient Poets, which seems to contain a Christian Mystery; viz. that *Hercules*, when he went to unbind *Prometheus*, by whom human Nature is represented, sailed the length of the great Ocean in an earthen Pitcher; thus lively describing Christian Resolution, that sails in the frail Barque of the Flesh thro the Waves of the World.

Prosperity
and Adversity
compared.

2. To speak more moderately; the principal Virtue of Prosperity is Temperance; and of Adversity, Fortitude; which in Morality is allowed the more heroical Virtue. Prosperity is the Blessing of the Old Testament, Adversity of the New; which is greater, and affords a clearer Revelation of the Divine Favour. Yet even in the Old Testament we find *David's Harp* play'd as many Dirges as Carols: And the Pencil of the Holy Ghost has more fully described the Afflictions of *Job*, than the Felicities of *Solomon*.

A Joy in Ad-
versity.

3. Prosperity has its Fears and Distastes; Adversity its Hopes and Comforts. In Embroidery we find it more pleasing to have a lively Work upon a solemn Ground, than a dark Work upon a light Ground. Whence

we

See the Fable of *Prometheus*, explained in the *Sapientia Veterum*.

we may judge of the Pleasure of the Heart, by the Pleasure of the Eye. Certainly, Virtue is like some Perfumes, that are most fragrant when burnt, or bruised: for Prosperity best discovers Vice; but Adversity Virtue.

ESSAY XII. Of the VICISSITUDE OF THINGS.

1. **S**OLOMON says, *there is no new thing under the Sun*: Therefore, ^{The Instability of things on Earth.} as *Plato* imagin'd, that all Knowledge is but Remembrance; so *Solomon* pronounces, that all Novelty is but Oblivion. Whence we may see, that the River *Lethe* runs as well above Ground as below. A certain abstruse and obscure *Astrologer* says, were it not for two things, that are constant; viz. the fixed Stars in their situation, and the diurnal Motion in its return, no Individual would last a Moment. And certainly Matter is in a perpetual Flux, never at a stay.

2. The great Winding-Sheets that bury all things in Oblivion, are *Deluges* and *Earthquakes*. As for *Conflagrations*, and great *Droughts*, they do not ^{The Causes of Oblivion.} totally dispeople or destroy. *Phaeton* drove the Sun's Chariot but a Day: And the three years Drought, in the time of *Elias*, was but particular, and left People alive. The Devastations by Lightning, so frequent in the *West-Indies*, are but of narrow extent: And Pestilences do not sweep away whole Nations.

3. In the Destructions by *Deluges* and *Earthquakes* the Remnant of ^{Deluges and Earthquakes leave a Remnant of People behind.} People are commonly ignorant and mountainous; so that they can give no account of the time past. Whence the Oblivion is the same as if no Inhabitants had been left^a. If we thoroughly consider the Natives of the *West-Indies*, 'tis highly probable they are a newer, or a younger People, than the Inhabitants of the old World. And it should seem that the Destruction which accidentally befel them, came not by Earthquakes, but rather by a particular *Deluge*: for Earthquakes are very rare in those Parts; but they have such vast Rivers, that those of *Asia*, *Africa*, and *Europe*, appear but Brooks to them. Their *Andes* likewise are exceeding high Mountains; whereby 'tis likely some Remnants of Men were saved from such a particular Deluge^b.

4. The Vicissitudes or Changes in the celestial Globe, are not much to ^{Changes in the Heavens.} our present Purpose. *Comets*, doubtless, have some Influence upon the Gross and Mass of things: but they are rather gazed at and waited upon in their Journey, than prudently observed in their respective and comparative Effects: For example; what kind of Comet for Magnitude, Colour, Radiation, Situation in the Heavens, or Duration, produces what kind of Effects^c?

VOL. II.

M

5. They

^a This is a Consideration not to be slightly passed over by those who would enquire into the Cause of the present Face of Things on the Globe.

^b See this Matter farther prosecuted in the Author's *New Atlantis*, Sect. I. 26, 27.

^c See the Author's *Specimen of Animated Astronomy*, SUPPLEMENT IX.

Vicissitudes of Years.

5. They say 'tis observed in the *Low Countries*, that once in thirty-five years, the same kind of Weather and Series of Years come about again; as hard Frosts, Inundations, Droughts, warm Winters, &c. and this Revolution they call the *Prime*. 'Tis a thing I rather mention, because by computing backwards, I have found some kind of Correspondence.

The Vicissitudes of Sects and Religions.

6. The greatest Vicissitude of things among Men, is that of *Sects* and *Religions*; which are the Orbs that rule in Mens Minds the most. True Religion is built upon a Rock; the rest are tossed upon the Waves of Time. When a received Religion is rent by Discords; the Holiness of its Professors decayed; their Lives grown scandalous; and the Times ignorant and barbarous, suspect the Introduction of a new Sect; especially if any wild paradoxical Spirit should now arise to espouse it: All which concurred when *Mahomet* published his Law.

Two Requisites to the Introduction of a new Religion.

7. No new *Sect* can spread, unless, (1.) it oppose or subvert the established Authority; which is an extremely popular thing; and (2.) opens the Door to Luxury and Pleasures. But for speculative Heresies; such as the *Arian* of old, and the *Arminian* of late, tho they operate strangely upon Mens Minds, yet they produce no great Alterations in States; unless by the favour of civil Occasions.

Three Ways of introducing new Sects.

8. There are three Ways of planting new Sects; viz. (1.) by *Miracles*; (2.) *Eloquence*; and (3.) the *Sword*. As for Martyrdoms, I reckon them among Miracles; because they seem to exceed the Strength of human Nature; and understand the like of superlative Holiness of Life.

The Ways of suppressing new Sects.

9. There is no better Way to stop the Rise of new Sects and Schisms, than to reform Abuses; compound the lesser Differences; proceed mildly from the first; refrain from sanguinary Persecutions; and rather to soften and win the principal Leaders, by gracing and advancing them, than to enrage them by Violence and Bitterness.

The Vicissitudes of Wars.

10. The *Vicissitudes of Wars* are numerous; but chiefly turn upon three Points; viz. (1.) the *Seat of War*; (2.) the *kinds of Arms*; and (3.) the *Discipline used*. (1.) Wars seem'd anciently to move chiefly from East to West: For the *Persians*, *Assyrians*, *Arabians*, and *Tartars*, who were the Invaders, are all Eastern People. The *Gauls* indeed were Western: but we read only of two Incurfions they made; the one upon *Gallo-Grecia*; the other upon the *Romans*: And as the East and West are no fixed Points in the Heavens; so of the Wars from the East or West, we have no certain Observation: But the North and South are fix'd by Nature; and it has been seldom or never seen, that the far Southern People invaded the Northern; but the contrary. Whence it appears, that the Northern Tract of the World is naturally the more martial: Whether this be owing to the Stars of that Hemisphere, or to the vast Continents upon the North; or to the Coldness of those Parts, which naturally renders the Body hardy, and the Heart courageous.

The Causes of Wars; viz. Dissolution of States.

11. Upon the breaking and shivering of a great Empire, Wars are certainly to be expected: For great Empires, while they flourish, enervate the native Forces of their Provinces, by relying wholly upon their own Soldiers.

Handwritten note:
The Persians conquered their neighbours.

Soldiers at home; so that when these fail, all goes to Ruin; and the Empire becomes a Prey to other Nations. Thus it happened in the Declension of the *Roman* Empire, and the Empire of *Almain*, after *Charles* the Great; every Bird taking its own Feathers.

12. On the other hand, great Enlargements and Unions of Kingdoms *Their En-* occasion Wars. For when a State swells with Power, it is like a River swell- *largement.* ling with the Land-Waters, and threatening an Inundation; as appeared in the Empires of *Rome*, *Turkey*, *Spain*, &c.

13. When the World abounds with civilized Nations, that will not usually marry, or beget Children, whilst unprovided of the Means of living; *A Want of* there is no danger of Inundations or Transmigrations of People: But when *providing for* vast shoals of Men continue populating, without any Provision for their *the Natives.* Maintenance; they must of necessity, once in an Age or two, discharge a Portion of their Natives upon other Nations. This the ancient Northern People usually did by Lot: which determined what part should continue at home, and what remove.

14. When a military State grows soft and effeminate, War certainly *Military* follows. For such States commonly grow rich in the time of their degene- *States grow-* rating; whence the Prey invites, and their Decay in Valour encourages an *ing effeminate.* Invasion upon them.

15. *Weapons*, *Arms*, or *Artillery*, tho they hardly fall under Rule and *The Revolu-* Observation; yet even these have their Returns and Vicissitudes. For Brass *tions of Artil-* Cannon was known in the Time of *Alexander* the Great, at the City of *lery and Fire-* *Arms.* *Oxydraces* in *India*; being what the *Macedonians* call'd Thunder, Lightning, and Magical Operations. And the *Chinese* have had the Use of Ordnance and Gunpowder above two thousand Years.

16. The Properties and Improvements of Arms are, *first* that of reaching *The Properties* to a great Distance: for this out-runs Danger; as in Ordnance and Muskets. *of Arms.* *Secondly*, the Strength of the Percussion; wherein likewise Ordnance exceed all *Aristations*, and ancient Inventions. The *third* is, Commodiousness of Use, as that they may serve in all Weathers; that the Carriage be light, manageable, &c.

17. (3.) As for Military Conduct and Discipline; at the first, Men *The Progress* principally relied upon Number, and trusted to downright Force and Va- *of Military* lour; frequently appointing pitch'd Battles, and so trying it out upon *Conduct, and* even Terms. They were then unskill'd in drawing up and marshalling *Discipline.* their Armies: Afterwards they depended rather upon competent, than vast ones. They now took the Advantages of Place, practised Feints, Stratagems, &c. and grew more skilful in preparing for Battle.

18. In the Youth of a State *Arms* flourish; in the middle Age *Learn-* *The Revolu-* ing; then both of them together for a time; and in the Decline, mecha- *tions of Learn-* *ing.* nical Arts and Trades. *Learning* has its Infancy, when 'tis but trivial and childish; next its Youth, when it is luxuriant and juvenile; then its Strength, when 'tis solid and reduced; and lastly, its old Age, when it becomes dry, exhausted and talkative. But it is improper to look long upon these turning Wheels of Vicissitude, lest we become giddy.

ESSAY XIII. OF TRUTH.

*The Nature
of Truth in
general.*

1. **W**HAT is *Truth*? said *Pilate* in Derision; and would not stay for an Answer. Certainly some Men delight in Giddiness; and count it Bondage to fix an Opinion: Thus affecting a Freedom of Will in thinking, as well as in acting. And tho the Sects of this kind of Philosophers are ceased; there still remain certain disputatious Wits, of the same Vein, tho not so rich. 'Tis not, however, the Difficulty and Labour of discovering Truth, nor the Captivity of Thought it imposes, when discover'd, that brings Lies into Favour: But a natural, tho corrupt Love of the Lie itself. 'Tis hard to say, why Men should love Lies; which they neither make for Pleasure, nor Advantage, but for the Lies sake. I know not how, *Truth* is a kind of naked and open Day-light; that shews not the Masks, and Mummeries, and Triumphs of the World, half so stately as Torches and Candle-light. *Truth* may, perhaps, bear the Price of a Pearl, that shews best by Day; but not rise to the Price of a Diamond, that shews best in varied Lights. A mixture of a Lie always adds Pleasure. And if vain Opinions, flattering Hopes, false Valuations, Imaginations, and the like, were abolished, surely mens minds would be left poor shrunken things; possessed with Melancholy, Uneasiness and Displeasure. One of the Fathers called Poetry the *Wine of Devils*; because it fills the Imagination, tho but with the Shadow of a Lie. Tho 'tis not the Lie that passes thro the Mind, but the Lie that sinks and settles in it, which does the mischief. And however these things are, in our depraved Judgments and Affections; yet Truth, which alone can judge itself, teaches, that the search or courting the acquaintance and possession thereof, is the sovereign Good of human Nature.

*The Nature
of Divine and
Philosophical
Truth.*

2. The first Creature of God, in the six days Works, was the Light of Sense; the last was the Light of Reason; and his Sabbath-work, on foot ever since, is the Illumination of his Spirit. First he breathed Light upon the face of Chaos; then into the face of man; and still he breathes Light into the face of his chosen. *Lucretius* said well, " 'Tis a pleasure to stand upon the Shore, and see Ships tofs'd at Sea; a Pleasure to stand in a Castle, and view a distant Battle: but no Pleasure is comparable to standing upon the Rising-ground of Truth, and surveying the Errors, the Wanderings, the Mists, and the Tempests of Mankind, in the Vale below: " provided this Survey be made with Compassion, and not with Pride. 'Tis certainly Heaven upon Earth, for a Man's mind to move in Charity, rest in Providence, and turn upon the Poles of Truth.

*The Nature
of Truth, or
Veracity, in
Civil Life.*

3. As for Truth, or Veracity, in civil Affairs; even those who practise it not, acknowledge, that clear and round dealing is the Honour of Man's Nature; and that a mixture of Falshood, is like alloy in Gold; which, tho it may make the metal Work the better, yet debases it. For these winding and crooked Courses are the Ways of the Serpent, that goes basely up-
on

on the Belly; and not upon the Feet. No Vice so covers a man with Shame, as to be found false and perfidious. And therefore *Montaign* assigns this sharp Reason why giving the *Lie* should be so odious; viz. that it calls the Person a *Bravado* towards God, but a *Coward* towards Men: For a Liar assaults God, but shrinks from Man. Surely the Wickedness of Falshood, and Breach of Faith, cannot be higher expressed, than in that it shall be as the last Peal, to call the Judgments of God upon the Generations of men: For 'tis foretold, that *Christ, at his second coming, shall not find Faith upon the Earth.*

ESSAY XIV. OF ANGER.

1. **T**O pretend utterly to extinguish Anger, is but a Stoical Ostentation. We have better Oracles; *be angry, but sin not: Let not the Sun go down upon your wrath.* Anger must be limited and confined, both in point of Height and Duration. Anger not to be extinguished.

2. To allay a Habit or natural Inclination to Anger, there is no better Way than to reflect seriously upon the Calamities and Disturbances it occasions in Life. The best time for this Reflection is soon after the Fit is over; when it may be seen strongly by a Retrospection. *Seneca* said elegantly, *Anger is like a falling House, that breaks itself to pieces upon every thing in its way.* The Scripture exhorts us, *to possess our souls in patience.* And certainly, whoever is out of Patience, is out of the possession of his Soul. It is not for Men to imitate Bees, and sting to the loss of their Souls.^a How to be moderated.

3. To consider it justly, Anger is a mean thing, below the Dignity of a Man; as appears by the Weakness of those in whom it principally reigns; viz. Children, Women, the Aged, and the Sick. And therefore if a Man happen to be angry, let him, if he would not forget his Dignity, carry his Anger, not with Fear, but Contempt of the Person; so as to seem above the Injury offer'd: which is easily done, where a Man can bend and govern his Anger a little. How governed.

4. The Causes and Motives of Anger are chiefly three: viz. (1.) too great a Sensibility of Injuries; for no Man is angry, who feels not himself hurt. Whence tender and delicate Persons must needs be often angry; as having so many things to ruffle them, which are scarce felt by more robust Natures. Three Causes of Anger, viz. Sensibility of Injuries.

5. (2.) A second Cause or Motive of Anger, is a quick Apprehension and an ingenious straining of an Injury offer'd, with regard to the Circumstances thereof; so as to represent it highly contemptuous. For Contempt whets Anger, more than the Injury itself. And therefore the Men who are ingenious in picking out Circumstances of Contempt, strangely inflame their own Anger. Straining of the Intention.

6. (3.) Lastly, the Thought of an Affront, or consequential Diminution of Reputation, sharpens and increases Anger. The Remedy is, to have, Over Tenderness of Character.

^a *Animaque in vulnere ponant*

have, as *Gonsalvo* advised his Soldiers, a good strong Cloth of Honour. But in all bridling of Anger, 'tis best to gain time, and make ones self believe the opportunity of Revenge is not yet come; but that we foresee a desirable one at hand, and so to quiet ourselves in the interim, and reserve it.

To prevent
Anger from
proving mis-
chievous.

7. To keep Anger from proving mischievous, there are three things that require particular Caution. One is to avoid severe Words; especially such as are cutting and apposite: For common Railings has little Sting. The second is, that in Anger a Man reveal no Secrets; for this unfits him for Society. The third is, not to precipitously to break off the present Business, in a Fit of Anger; but howe. Passion may rise, to act nothing that is irrevocable.

How to raise
or allay An-
ger in another.

8. Anger, in another, is raised and appeased chiefly by a prudent choice of Times; as to incense Men when they are sad, and out of humour: And again, by raking up and repeating all that may any way shew or aggravate the Contempt. The Storm is laid by the two contrary Means; viz. the choice of serene or chearful Hours, for first relating disagreeable or provoking Matters; because the first Impression is strong. The other is the separating, by all possible Means, the Construction of the Injury from the Contempt; imputing it to Ignorance, Fear, Passion, or what you will.

ESSAY XV. Of REVENGE.

The Impru-
dence of ta-
king Revenge.

1. **R**EVENGE is a kind of wild Justice; which, the more it spreads in human Nature, the more ought the Law to weed it out. For the first Injury only offends the Law; but Revenge entirely sets aside its Authority. Certainly, in taking Revenge a Man is but even with his Enemy; whereas by forgiving, he becomes his Superior: For it is a princely thing to pardon. And *Solomon* says, 'tis the glory of a man to pass over a transgression. What is past is irrevocable; and wise Men find it enough to regard what is present and to come: those therefore do but trifle, and disquiet themselves in vain, who labour about what is past.

Injuries sel-
dom done for
their own
sakes.

2. No Man does Wrong for the Wrong's sake; but either to procure himself Profit, Pleasure, Honour, or the like. Why therefore should I be angry with a Man for loving himself better than me? And if a Man should do wrong, merely out of ill Nature; yet 'tis but like the Thorn or the Briar, which prick and scratch, because it is their Nature.

The pruden-
tial way of
taking Re-
venge.

3. Revenge is the more excusable, where the Law has provided no Remedy: but then the Revenge must be such, as there is no Law to punish: otherwise a Man doubles his own Punishment; and gives his Enemy the Advantage. Some, when they take Revenge, give notice when it comes. This shews a more generous Temper; that delights not so much in doing the Injury, as in making the Aggressor repent: But base and cowardly Natures are like the Arrow that flieth in the dark.

Perfidious
Friends how
so be treated.

4. *Cosmus*, Duke of Florence, had a stinging Apopthegm against perfidious Friends; as if they were unpardonable. "You shall read, says he, that

“ that we are commanded to forgive our Enemies ; but you never read, “ that we are commanded to forgive our Friends ”. The Spirit of *Job* was in better Tune ; who said, *shall we receive Good at the hands of God, and not be content with Evil also ?* This is certain ; he who studies Revenge, keeps his own Wounds green ; which would otherwise heal.

5. Publick Revenge is generally prosperous ; as for the Deaths of *Cæsar*, *Publick Revenge* *fortunate, but not private.* *Pertinax*, *Henry the Third of France*, and many more : But in private Revenge the Case is otherwise. Nay, vindicative Persons have rather the Fate of Witches ; who living mischievous, generally die unfortunate.

ESSAY XVI. OF ENVY.

1. **N**ONE of the Passions are supposed to fascinate, but *Love* and *Envy* : both which cause violent Desires ; suddenly form themselves into Imaginations and Suggestions ; and both readily come into the Eye ; especially upon the Presence of the Object : which are the Points that conduce to Fascination, if any such thing there be *. The Scripture calls *Envy* an *evil Eye* ; and the Astrologers call the bad Influences of the Stars, *evil Aspects* : so that in the Act of *Envy*, there seems to be generally acknowledged an Irradiation, or Darting of the Eye. Nay, some have observed, that an envious Eye proves most pernicious when the Person envied is view'd in Triumph ; which gives an edge to *Envy* : And besides, at such times the Spirits of the Person envied come into the outward Parts, and so meet the Blow †.

2. He who has no Virtue in himself, is apt to envy it in another. For Mens Minds will either feed upon their own Good, or others Evil : and he who wants the one, will seize the other. Again, he who despairs of attaining to the Virtue of another, will gladly diminish the Difference, by depreciating his Rival. *What Persons are most inclined to Envy ; viz. the less virtuous.*

3. Meddling and inquisitive Persons are commonly envious ; for to be very inquisitive about other Mens Business, cannot greatly conduce to the doing of ones own. Whence busy Natures take a kind of Theatrical Pleasure, in viewing the Fortunes of others. Nor can the Man intent upon his own Business, find much Occasion for *Envy* ; which is a gadding Passion, that loves to be abroad ‡.

4. Men of noble Birth are observed to be envious towards new-rising Men ; the former Distance being now alter'd : like a Deceit of the Eye, when as things appear to go off, some others come on. *The Nobility.*

5. The deform'd, Eunuchs, old Men, and the illegitimate are envious : For he that cannot mend his own Case, will do his utmost to impair anothers ; unless these Defects light upon generous and heroical Natures, who endeavour to make them a part of their Glory : as to have it said, that an *Eunuch*, or a *Cripple*, did this, in the way of a Wonder ; as in the

* See the *Sylva Sylvarum*, under the Article, *Imagination*.

† See the Article *Imagination*, in the *Sylva Sylvarum*.

‡ *Non est curiosus, quin idem sit malevolus.*

the Case of *Narjes*, the Eunuch, and of *Agefilaus*, and *Tamerlane*, who were lame.

The Unfortunate restored.

6. The Case is much the same with those that rise after Misfortunes: such Men being commonly angry with the Times; and relish other Mens Sufferings as a Compensation of their own.

Those desirous of many Excellencies.

7. They who, out of Levity and Vain-glory, desire to excel in too many ways, must needs be envious; because 'tis impossible but many should surpass them in one or other of these ways. Thus the Emperor *Adrian* mortally envied Poets, Painters, and other Artificers in Ways wherein he was ambitious to excel.

Relations and Collegues.

8. Lastly, near Relations, Fellows in Office, and Persons bred up together, are apt to envy their Equals upon being advanced; because this Advancement upbraids them with their own Fortunes: as it were pointing at and galling them. It likewise comes more into the Observation of others; and Envy always reflects and redoubles from Fame and Discourse: whence *Cain's* Envy appears the more malignant; because, when *Abel's* Sacrifice was better accepted, no Man stood by to observe it.

The Persons least apt to be envied; viz. the worthy.

9. Persons of eminent Virtue are less envied when advanced; because Promotion seems their due: and no Man envies the Payment of a Debt. Besides, Envy is always joined with Self-comparison; so that where there is no Comparison, there is no Envy: whence Kings are only envied by Kings. The Unworthy are most envied in their first Rise, and afterwards less; but Men of Merit are most envied upon a long Enjoyment of Fortune. For tho' their Virtue be still the same, yet it now loses of its Lustre; fresh Men growing up to eclipse it.

Nobility.

10. Nobles are less exposed to Envy in their rising; because Honours seem due to their Birth; and make but little apparent Addition to their Fortune: For Envy is like the Sun, that beats hottest upon rising Grounds. On the same Account, Persons raised by degrees are less envied than those advanced of a sudden.

Those who win their Honours hardly.

11. They whose Honours are joined with great Fatigues, Anxieties and Dangers, are less envied. For in this Case Men conceive, that Honour was dearly purchased; and sometimes begin to pity the Purchaser: but Pity is almost the certain Cure of Envy.^b Whence the more deep and sober Politicians in high Places, are always complaining what a Life they lead; and chanting a *Quanta patimur*: Not that they feel what they say; but merely to blunt the Edge of Envy. This is to be understood of Business imposed upon such Men; and not of what they procure to themselves: For nothing excites Envy more, than an ambitious Grasping, and immoderate Monopoly of Business; as nothing extinguishes it more, than for a Man in a great Post to continue the full Rights and Privileges to his inferior Officers; who thus become so many Skreens betwixt himself and Envy.

12. Above all, Envy beats strongest upon those who carry the Greatness of their Fortunes with Insolence and Haughtiness; and are always shewing

^b See below, §. 13.

shewing it, either by outward Pomp, or by triumphing over their vanquished Adversaries or Competitors; whereas wise Men will rather sacrifice to Envy, in suffering themselves to be sometimes crossed, and conquered, in Matters of no great Moment. Yet an open and undissembled Manifestation of Greatness, without Arrogance and Vain-glory, raises less Envy, than when carried in a more crafty and skulking Manner. For by this disguised Conduct a Man impeaches Fortune, as if conscious of his own want of Worth; and so provokes others to envy him.

13. And, as we above observed, that the Act of Envy has somewhat of Fascination in it; so it admits of no other Cure, but the Cure of Enchantment: that is, to *remove the Lot*, and lay it upon another. For which purpose the wiser sort of Politicians always bring upon the Stage some Servant, Associate, &c. on whom to derive the Envy that would otherwise fall upon themselves. And for such Tools, there are never wanting certain rash and enterprizing Spirits; who, to get into Power, or Office, will take it on any Condition.

14. There is, however, some Good in publick Envy; tho none in private. For publick Envy is a kind of wholesome Ostracism, that eclipses Men when they grow too great: and therefore proves a Rein to keep Men of Power within bounds.

15. Publick Envy, call'd in the modern Languages, *Male-content*, is a Disease in a State, like to Infection: For as Infection spreads and taints what is sound; so when Envy is got into a State, it traduces even the best Actions and Institutions thereof; and turns them into an ill Odour: whence there is little advantage in intermixing plausible and popular Actions with such as are odious: For this only argues Weakness and Fear of Envy; which thus proves more pernicious, as in Infection, which thro Fear is caught the sooner.

16. This publick Envy seems to beat stronger upon the principal Officers or Ministers of a Kingdom, than upon Kings and States themselves. And here it is a Rule, that if the Envy be great against the Minister, when the Cause in him is small; or if the Envy be almost general, or against all the Ministers of State, then, tho secret, it strikes at the King or State itself.

17. Envy, of all the Affections, is the most importunate and continual: For the Occasions of the other Passions occur but seldom. Whence it was well said, that *Envy makes no Holidays*: For 'tis ever at work. And hence it is also observed, that Love and Envy make a Man lean; which the other Affections do not, because not so continual. 'Tis likewise the vilest Affection, and the most depraved; for which Reason 'tis the proper Attribute of the Devil, who is called *the envious Man, that soweth Tares amongst the Wheat by night*: for Envy always works craftily in the dark; and to the Prejudice of the best things, such as Wheat.

VOL. II.

N

ESSAY

¹ See the Essay upon Seditions and Troubles, Sect. III.

ESSAY XVII. Of LOVE.

Great Men
least liable to
extravagant
Love.

1. **T**HE Stage is more beholding to Love, than real Life: For Love is the constant Subject of Comedy, and sometimes of Tragedy: but in Life it frequently proves mischievous; one while as a *Siren*, another as a *Fury*. Among all the great and illustrious Persons, whether of ancient or modern Date, scarce one has been affected with the mad degree of Love: which shews, that great Minds and great Business exclude this effeminate Passion. We must, however, except *Marc Antony* and *Appius Claudius*; the former a voluptuous and luxurious, but the latter an austere and prudent Man: Whence it appears, that Love may sometimes enter not only an open, but even a well fortified Heart; if a careful Watch be not kept. It was a groveling Saying of *Epicurus*; *We are a sufficiently ample Theatre to each other*: As if a Man, made to contemplate the Heavens, should, instead thereof, adore but a little Idol; and subject himself to the Eye, an Organ given him for a nobler Purpose.

Love tyrannizes over Things.

2. 'Tis strange to observe the Excess of this Passion; and how it insults the Nature and true Value of things: insomuch that to speak in a perpetual Hyperbole suits no Subject but Love. Nor is this Hyperbole confined merely to Phrase. The arch Flatterer, wherewith all the petty Flatterers have Intelligence, is justly said to be a Man's self; but the Lover is a greater Flatterer even than this: For never did proud Man think so absurdly well of himself, as the Lover does of his Mistress. Whence the justness of that common Saying; *'Tis impossible to love, and be wise*. Nor does this Phrensy appear to others only; but most to the Person beloved, unless the Love be reciprocal. For 'tis a true Rule, that Love is always repaid with Love, or secret Contempt. Whence Men should be watchful of this Passion; as it loseth not only other things, but even itself. The other Losses attending it are elegantly expressed in the Fable of the Poets, which shews that he who preferr'd *Helen*, quitted the Gifts of *Juno* and *Pallas*: For whoever gives himself up to Love, bids adieu both to Riches and Wisdom.

Its Tides.

3. This Passion has its Spring-Tides when the Mind is weakest; viz. at the times of great Prosperity, and of great Adversity: tho the latter may have been less observed. For both these times kindle up Love, and make it more fervent: which shews it to be the Child of Folly. They do best, who, if they must admit of Love, make it keep quarter; and separate it wholly from their serious Affairs, and the Business of Life: For if it once interfere with Business, it disturbs the whole Frame thereof; and hinders Men from being steady to their own Ends.

Is a natural Principle in Man.

4. However it happens, military Men are much given to Love; perhaps as they are given to Wine: For Dangers commonly require to be paid with Pleasures. There is in human Nature a secret Inclination and Motion to the Love of others; which, if not spent upon some one, or a few,

few, it naturally spreads towards many, and makes Men humane and charitable; as we sometimes see in Monks. Conjugal Love produces, social Love improves, but wanton Love corrupts Mankind^k.

ESSAY XVIII. *Of GOODNESS and GOOD-NATURE.*

1. **G**oodness I call the Habit, and *Good-nature* the Inclination to promote the Welfare of Mankind. This is the greatest Virtue of the Mind; the Character and Copy of the Deity; without which Men are but noxious Animals. Goodness answers to the theological Virtue of Charity; and admits no Excess, but Error. The desire of Power in Excess caused the Angels to fall; the desire of Knowledge in Excess caused Man to fall; but in Charity there is no Excess: neither can Angel or Man come into danger by it. *Goodness and Good-nature, what.*

2. An Inclination to Goodness is deeply implanted in human Nature; and if it wants an Opportunity of exerting itself towards Men, it turns aside to Brutes; as we see in the *Turks*; who, tho' a cruel and barbarous People, are merciful to Beasts, and give Alms to Dogs and Birds. Yet this Virtue of Charity is not without its Errors. The *Italians* have a shrewd Proverb; *So good, as to be good for nothing.* And *Machiavel* ventured to write, almost in plain Terms, that *the Christian Faith gave up the Good and the Innocent a Prey to Tyrants*: which he said because no Law, Sect, or Opinion ever carried the Point of Goodness so high as the Christian Religion does. To avoid, therefore, both the Scandal and the Danger, it is proper to know the Errors of so excellent a Habit. *Good-nature implanted in Mankind.*

3. Endeavour the Good of others without being a Slave to their Faces, or Fancies; otherwise this is Facility or Softness, which takes an honest Mind Prisoner. Neither throw a Gem to *Æsop's* Cock, that would be better pleased with a Barley-Corn. The Example of God is our best Direction in this Case: *He sends his Rain both upon the just and unjust*; but does not rain Wealth, nor shine Honour and Virtue upon all Men equally. Common Benefits are to be communicated with all; but peculiar Benefits with a chosen few. And beware of breaking the Pattern in taking the Portrait; for Divinity makes the Love of ourselves the Pattern, and the Love of our Neighbours the Portrait. *Sell all that thou hast, and give it to the poor, and follow me.* But sell not all that thou hast, except thou come and follow me; that is, except thou have a Vocation, wherein thou mayst do as much good with a little, as with much: otherwise, in feeding the Streams, thou driest the Fountain. *Rules for the Conduct of Goodness.*

4. Nor is there only a *Habit* of Goodness, directed by right Reason; but in some Men there is a natural *Disposition* and Propensity to it; as in others there is a natural Malignity: For some are naturally averse to the good of others. The lighter kind of Malignity turns to Moroseness, Opposition, Perverseness, Obstinacy, or the like; but the blacker sort to Envy and Malice. *Good-nature natural to some, and not to others.*

^k See the *Fable of Cupid, or Love*, explained in the Author's *Sapiensia Veterum*.

lice. Such Men almost rejoice in the Calamities of others, and are always aggravating of them; not like the Dogs that licked *Lazarus's* Sores, but like Flies that are always buzzing about any thing that is raw. And there are many *Misanthropes* who delight in bringing Men to the Bough, tho they have never a Tree for the purpose, as *Timon* had, in their Garden. Such Dispositions are the Cancers and Imposthumes of human Nature. And yet these are the fittest Blocks to make Politicians of; like bent Timber, that is good for Ships designed to be toss'd, but not for Houses that are to stand firm.

The Marks
and Tokens of
Goodness.

5. There are several Parts and Signs of Goodness. If a Man be civil and courteous to Strangers, it shews him a Citizen of the World; whose Heart is no Island cut off from other Lands, but a Continent that joins them. If he be compassionate to the Afflicted, it shews a noble Soul; like the Tree which is wounded when it gives the Balm. If he easily pardons and forgives Offences, it shews a Mind perched above the reach of Injuries. If he be thankful for small Benefits, it shews he values Mens Minds before their Treasure. But above all, if he has *St. Paul's* Perfection, and wishes to be anathematized for the Salvation of his Brethren, it shews a divine Nature, and a kind of Conformity with Christ himself.

ESSAY XIX. Of CHARITY.

Three Degrees
of Charity.

1. **T**O return the Love of our Friends is the Charity of Publicans, and founded on the Bond of Utility; but to be well affected towards our Enemies, is one of the sublimest Virtues of the *Christian Religion*, and an Imitation of the Divinity. But this Charity has several Degrees; the first whereof is the forgiving our Enemies upon Repentance. And there is some resemblance of this Charity found among the more generous wild Beasts: For 'tis said that the Lion will not exercise Cruelty upon the Creatures that submit and fall before him. The second Degree is Forgiveness of Enemies; tho they remain stubborn, without Reconciliation or Attonement. The third Degree is that, which not only pardons and excuses, but even confers Benefits and good Offices upon Enemies.

May have
their Allay.

2. But these Degrees either have or may have somewhat of Ostentation; at least somewhat of Greatness of Mind: and not proceed entirely from pure Charity. For possibly when any one feels Virtue flow out of him, he may be lifted up with it; and be more delighted with the Fruit of his own Virtue, than the Good and Happiness of his Neighbour. But if a Man, when he finds any Misfortune befall his Enemy from another Quarter, be grieved and troubled at it, from the bottom of his Heart; without secretly rejoicing, as if he thought that his Day of Revenge and Retribution were come; this is the Virtue whose Opposite *Job* detests: *If I have rejoiced at the ruin of him that hated me, and triumphed that misfortune had found him out*; and this is the Exaltation, and top Perfection of Charity.

ESSAY XX. *Of joining PRUDENCE with INNOCENCE.*

WHEN the Judgment of a Man is depraved and corrupted, he will perpetually despise and render insignificant all the Instruction and Persuasion that does not begin with a Detection, and Representation of the bad Complexion, or ill Habit, of his Mind: For this would be to apply a Remedy before the Wound is known and searched. Men of no Morals, who can never think justly, are prepossessed with a Notion, that Goodness in others proceeds only from Simplicity, Ignorance, and want of Practice in human Affairs; and therefore they laugh at the most prudent and wholesome Advice of their Instructor, so long as they find him unacquainted with the things they have in their own Hearts; and the most inward Concealments and Disguises of their immoral Practices. For as Solomon justly observes; *a Fool will never receive the Word of Wisdom till you speak the very things he has in his heart.* He, therefore, that aims not at a solitary Goodness, but at such as is seminal and generative, so as to draw and prevail upon others, should understand all those things which are called the *depths of Satan*; that he may speak with Authority, and truly enter into the Minds of the vicious. And to this End was given us the Precept; *Try all things, and hold to that which is best.* Whereby we are directed first to a general Examination; and then to the making a judicious Choice. And from the same Fountain springs that other Admonition; *Be wise as Serpents, but harmless as Doves.* So that there is no serpentine Tooth, no Venom, no Sting, that we ought to be unacquainted with. And let not any one here be afraid of Pollution and Taint: For the Sun, tho it enters the most loathsome Places, is not defiled thereby. Nor again, let any one suspect it is tempting of God; for we are assured in Scripture, that *he is sufficient to keep us unspotted*¹.

*The Way of
effectually
counselling
the vicious.*

ESSAY XXI. *Of SUPERSTITION.*

1. IT is better to have no Belief of a God, than one that is disgraceful and unworthy of him: The first being but Infidelity; the other Impiety and Contumely. And certainly Superstition is a Reproach of the Deity. *Plutarch* said well, "That he had rather Men should assert there was no such Person as *Plutarch*; than that there was one *Plutarch* who devoured his Children as soon as they were born". And as the Reproach of Superstition is greater towards God; so the Danger thereof is greater towards Men. *Atheism* still leaves a Man to Sense, to Philosophy, natural Affection, Laws, and the Desire of Reputation: All which, tho Religion were wanting, may procure an external moral Virtue. But *Superstition* dismounts all these; and sets up an absolute Tyranny in the Minds of Men. Whence *Atheism* seldom breeds Disturbances in States: For it makes

*Atheism less
pernicious
than Super-
stition.*

¹ See the *De Augmentis Scientiarum*, Sect. XX, &c.

makes Men cautious and mindful of their own Security. Nay, we see that the Times inclin'd to *Atheism*, as those of *Augustus Caesar*, were quiet Times. But *Superstition* has been the Ruin of numerous States; as introducing a new *Primum Mobile*, that over-rules all the Spheres of Government.

The Procedure of Superstition.

2. The Master of *Superstition* is the People; and in all Superstition wise Men follow Fools; and Arguments are fitted to Practice, in an inverted Order. It was gravely said by certain Prelates in the Council of *Trent*, that the Schoolmen, whose Doctrine was there prevalent, were like Astronomers, who had feigned Eccentricks, Epicycles, &c. to solve the celestial *Phenomena*, tho they knew there was really no such Machinery; for that in like manner, the Schoolmen had framed subtle and intricate Axioms, to solve the Practice of the Church.

Its Causes.

3. The Causes of *Superstition* are, (1.) pleasing and sensual Rites and Ceremonies; (2.) Excess of external and pharisaical Holiness; (3.) too great Reverence of Traditions, which must needs load the Church; (4.) the Stratagems of Prelates for their own Ambition and Lucre; (5.) the over-favouring of good Intentions, which opens the Door to Novelties and Superstitions; (6.) the injudicious Application of human Examples to divine Matters, which breeds a spurious mixture of Imaginations; and (7.) barbarous Times, especially if join'd with Calamities and Disturbance.

Its Deformity.

4. Superstition unmask'd is a deform'd thing: for as the being so like a Man adds Deformity to the Ape; in like manner Superstition is the more deform'd for its Likeness to Religion. And as wholesome Meats corrupt to little Worms; so good Forms and Orders corrupt into petty Observances.

Superstition to be avoided in Reformation.

5. There is sometimes Superstition shewn in avoiding Superstition; when Men think to do best, by receding farthest from the Superstition that before prevailed. Care therefore should be taken in the Reformation of Religion, lest, as in ill purging, the good be taken away with the bad: which commonly proves the Case, when the People is the Reformer.

ESSAY XXII. Of ATHEISM.

The Belief of a Deity necessary.

1. IT is harder to believe all the monstrous Fables of the *Alcoran*, the *Talmud*, or the *Legend*, than that this universal Frame is without a *Mind*. God therefore never wrought a Miracle to confute *Atheism*; because his ordinary Works confute it. 'Tis true, that a little natural Philosophy inclines Men to *Atheism*; but depth in Philosophy always brings them about to Religion. For while the Mind looks upon *second Causes* scatter'd, it may sometimes go no farther: but when it beholds the Chain of them collected and linked together, it must needs have recourse to Providence and a Deity. Nay, that School which is most accused of *Atheism*, most clearly demonstrates Religion; viz. the School of *Leucippus*, *Demo-*

Democritus and Epicurus. For it is much more probable, that four mutable Elements, and one immutable fifth Essence, duly and eternally placed, should require no God; than that a Host of Atoms, and infinite Seeds floating at random, should have produced this regular and beautiful Frame of things, without a divine Marshal.

2. We read in Scripture, *the Fool hath said in his heart, there is no God.* That Atheism 'Tis not *the Fool hath thought in his heart*; so that he rather says it to himself, as what he would willingly have, than as what he can thoroughly believe. For only they deny a God, who wish there were none. That Atheism is rather in the Lip than in the Heart appears in nothing more than in this, that Atheists are always defending their Opinion; as if they distrusted it, and would gladly be strengthened by the Consent of others. Nay, we find Atheists strive, as other Sects do, to make Converts; and what is monstrous, some of them will suffer for Atheism, rather than recant: whereas if they were really persuaded there was no God, why should they trouble themselves about it?

3. *Epicurus* is charged with dissembling, merely for his Reputation, when he affirmed there were blessed Natures; but such as enjoyed themselves, without interposing in the Government of the World. In this they say he temporized; and secretly thought there was no God. But certainly he is traduced; for his Words are noble and divine. 'Tis not prophane, says he, *to deny the Gods of the Vulgar; but it is prophane to apply the vulgar Opinions to the Gods.* *Plato* could not have spoke better. Whence it appears, that tho he had the assurance to deny the divine Administration of things; yet he went not so far as to deny the divine Nature.

4. The *West Indians* have Names for their particular Gods, tho they have no general Name for God: As if the *Romans* should have had the Names, *Jupiter, Apollo, Mars, &c.* but not the word *Deus*. This shews, that even those barbarous People have a Notion of the Thing, tho not of the Extent thereof. So that the mere Savages join with the subtlest Philosophers against the Atheists.

5. The contemplative Atheist is rare; such as *Diagoras, Bion, or Lucian* who are perhaps, with some few others: yet they seem to be more than they are; because all that oppose a received Religion, or Superstition, are branded by the contrary Party with the Name of Atheists. But the great Atheists indeed are Hypocrites; who are ever handling holy things, without feeling: so that they must needs be cauterized in the End.

6. The Causes of *Atheism* are, (1.) Divisions in Religion, if they be numerous; for any one Division increases Zeal on both sides; but many introduce Atheism. (2.) Another Cause is, the Scandal of Priests; where *St. Bernard's* Words prove true: *We can no longer say like People, like Priest; for the People now are not so bad as the Priests.* (3.) A third Cause is, a prophane Custom of Sporting, and Ridiculing in sacred things; which by degrees defaces the Reverence of Religion. (4.) And lastly, learned Times, especially if attended with Peace and Prosperity: For Troubles and Adversities strongly bend the Mind to Religion.

The Disadvantages of Atheism to particular Persons.

7. To deny a God destroys the Nobility of human Nature: For certainly Man is allied to the Brute by his Body; and if he be not allied to God by his Spirit, he is a base and ignoble Creature. It likewise destroys the human Magnanimity and Exaltation: For example, observe what Generosity and Courage a Dog will put on, when he finds himself supported by a Man; who to him is a kind of God. This Courage is manifestly such, as the Creature, without confidence of a better Nature than his own, could never attain. So Man, when he relies upon the divine Protection and Favour, acquires such a Strength and Assurance as human Nature, left to itself, could never obtain. Therefore, as Atheism is every way odious, so also in this, that it deprives our Nature of the Means of rising above human Frailty.

And to Nations.

8. The Case is the same in Nations as in particular Persons. Never was such a State for Magnanimity as the *Roman*; of which *Cicero* declares, that it excell'd all others merely in Piety, and the Belief of an over-ruling Providence^m.

ESSAY XXIII. Of MIRACLES.

The Difference betwixt the Miracles of Christ and others.

WHEN God had created the Universe, he surveyed it; and saw that all was extremely good. And our Saviour in all his Miracles, which are new Creations, that break thro the Laws of the first, performed none but such as breathed Beneficence and Love. *Moses* performed Miracles; and brought variety of Plagues upon the *Egyptians*. *Elijah* performed Miracles; and shut up the Heavens, so that it rained not upon the Earth: And again, brought the Fire of God from Heaven upon the Captains and their Bands. *Elisba* performed a Miracle; and brought two of the Bears out of the Wood to destroy the Children that mock'd him. *St. Peter* struck *Ananias* dead; and *St. Paul* struck *Elymas* the Sorcerer with Blindness: But Jesus did nothing of this kind. The Spirit of God descended upon him in the form of a Dove; in allusion to which he said, *ye know not what Spirit ye are of*: For the Spirit of Jesus is the Spirit of the Dove. Those Servants of the Lord were as his Oxen treading out the Corn, and trampling down the Chaff: But Jesus, the Lamb of God, is without Anger, without Judgments. All his Miracles were bestowed upon the Body; and all his Doctrine upon the Soul of Man. Man's Body stands in need of Sustenance, Defence from external Injuries, and of Remedies: Accordingly Jesus brought shoals of Fish into the Nets to supply Man with Provision; he converted Water into Wine, to rejoice the Heart of Man; he pronounced Barrenness upon the Fig-tree for not performing its Office, and supplying Food to Man; he multiplied Fishes and Loaves

^m *Quam volumus, licet, Patres Conscripti, nos amemus, tamen nec numero Hispani, ne robor Gallos, nec calliditate Pœnos, nec artibus Græcos, nec deniq; hoc ipso hujus gentis & terra domestico nativoq; sensu Italos ipsos, & Latinos, sed Pietate ac Religione, atque hac sapientia, quod Deorum immortalium Numine omnia regi gubernariq; perspeximus, omnes gentes nationesque superavimus.* *Orde Flavianus. respons. c. 9 ad fin.*

Loaves for the feeding of thousands. He allay'd the Winds, which threatn'd Destruction to the Mariners; he restored Limbs to the Lame, Sight to the Blind, Speech to the Dumb, Health to the Sick, clean Flesh to the Leprous, a sound Mind to the Possessed, and Life to the Dead. But *Jesus* perform'd no Miracles of Judgment; his were all Works of Beneficence, and friendly to Man: so that we may truly say of him, *he did all things well.*

ESSAY XXIV. *Of IMPOSTURE.*

IMposture has three kinds of Stile or Forms of Speech. The first is *Thrice Stiles* used by those, who, as soon as they have got any Matter, work it *of Imposture.* into an Art, impose Technical Terms upon it; then reduce all things into Distinctions; and from these draw out Positions, or Points of Doctrine, and raise Oppositions by Question and Answer. And hence proceeded the Dust and Chaff of the Schoolmen.

2. The second is the Stile of those who with a flight of Wit, like inspired Poets, invent vast varieties of Examples; to draw in the Minds of Men. Whence we have the Lives of the Fathers, and numberless Fictions of the ancient Hereticks.

3. The third, is the Stile of those who fill all things with Mysteries, lofty Speeches, Allegories and Allusions: And in this Mystic and Gnostic Way, many Hereticks have trod. The *first* is calculated to ensnare the Sense and Understanding; the *second* to entice; the *third* to stupefy: and all of them to seduce Mankind ⁿ.

ESSAY XXV. *Of HYPOCRITES.*

1. **T**HE Boasts of Hypocrites are confined to the Works of the first Table; or consist only in the Veneration due from Man to God. *The Vaunts of Hypocrites regard Sacrifice rather than Mercy.* There are two Reasons of this: For first, these Works have a greater Pomp of Sanctity; and secondly, a less Opposition to Vice. The Confutation therefore of Hypocrites is, to send them from the Works of Sacrifice to the Works of Mercy. *I will have Mercy, and not Sacrifice.* And again, *pure Religion and unspotted before God is this, to visit the Fatherless and Widows in Affliction.* And again, *He who loves not his Brother whom he has seen, how shall he love God, whom he has not seen?*

2. But there are certain sublime and tumid Hypocrites, who being deceived, and thinking themselves worthy of a close Conversation with God, neglect the Offices of Charity and Beneficence to their Neighbour, as smaller Matters. And this Error, tho it was not the Foundation of a monastic Life, yet added Excess to what at first was well design'd. For 'tis justly said, *that the Gift of Prayer is a great Gift in the Church;* and

VOL. II.

O

'tis

ⁿ See more to this Purpose, in the first Part of the Author's *Novum Organum.*

'tis of Use to the Church that there should be Societies of Men releas'd from worldly Cares, and set apart to solicit God with their devout and assiduous Prayers for the Good of the Church. But Hypocrisy has a great Resemblance with this Ordination; tho the whole Institution is not condemned, but only the fierce and boasting Spirits reproved: For *Enoch*, who walked with God, prophesy'd, as we find in *St. Jude*, and benefited the Church with the Fruit of his Prophecy; and *John the Baptist*, whom some make the Founder of a monastick Life, minister'd greatly both in prophesying and baptizing.

The distinguishing Marks of Hypocrites.

3. But for those who are so very officious towards God, this Question is put; *If thou shalt do justly, what dost thou give to God, or what shall he receive from thine Hand?* The Works of Mercy therefore, when they are wanting, infallibly distinguish Hypocrites. The contrary is the Case with Hereticks: For as Hypocrites cloak their Injuries to Man under their pretended Sanctity towards God; so Hereticks, under a certain kind of Morality towards Man, insinuate their Blasphemies against God. Another Mark of Hypocrites is, that in the Church, and among the People, they swell, as if blown up with a sacred Fury, and set all things in a Flame; but to see them in their Solitudes, private Meditations and Conversations with God, they are cold, lifeless and languid; full of Malice, and the old Leaven.

ESSAY XXVI. Of HERESIES.

Two Causes of Heresy.

1. **T**HERE are two Causes of Heresy; viz. the Ignorance of the Will, and the Ignorance of the Power of God: which is well express'd in this fundamental Canon; *Ye err, not knowing the Scriptures; nor the Power of God.* The Will of God is best reveal'd in the Scriptures, which we are to search; but his Power is best reveal'd by the Creatures, which we are to contemplate. The Fullness of the Power of God should therefore be so asserted, as not to blemish his Will; and the Goodness of his Will to be so maintain'd as not to lessen his Power. True Religion therefore lies in a Mean betwixt Superstition and superstitious Heresies on the one side, and Atheism and prophane Heresies on the other.

The Difference between Superstition and Atheism.

2. Superstition, rejecting the Light of Scripture, and following corrupt or apocryphal Traditions, new Revelations, or false Interpretations of the Scriptures, feigns many things concerning the Will of God, that deviate from, and are foreign to their Sense. But Atheism mutinies, and takes Arms against the Power of God; not believing his Word, or that it reveals his Will, from a Disbelief of that Power, to which all things are possible. And the Heresies proceeding from this Fountain seem of a more heinous Nature than the rest; for thus in Civil Government 'tis a blacker Crime to diminish the Power and Majesty of the Prince, than to touch his Character.

3. The

3. The Heresies which diminish the Power of God, are of three Degrees, exclusive of downright Atheism^o; and rest upon one and the same Mystery, or Pretence of Goodness; viz. the clearing of the Will of God from all Aspersions of Evil. The *first* Degree is of those who make two equal Principles, contrary to, and contending with each other; the one a Principle of Good, and the other a Principle of Evil. The *second* Degree is of those who think the Majesty of God injured by raising a positive and active Principle against him; and therefore, rejecting this Audacity, oppose to him a negative or privative Principle: For they would have the Work of Matter and the Creation, by a native, internal, and substantial Principle, to tend and return into Confusion and nothing: not considering that it requires the same Omnipotent Power to annihilate Matter, as to create it. The *third* Degree is of those who restrain the former Opinion to human Actions, which are sinful; and make them substantially depend, without any Connection of Causes, upon the internal Will and Pleasure of Man; assigning wider Limits to the Knowledge, than to the Power of God, or rather to that Part of his Power (because Knowledge is Power) by which he knows; than to that by which he moves and acts: Thus making him indolently to foreknow things which he does not predestinate or pre-ordain. But whatever depends not upon God, as an Author and Principle, must, by Connection, and subordinate Degrees, be in the Place of God; a new Principle, and a kind of under-God. Whence this Opinion is justly rejected as injurious, and lessening both to the Majesty and Power of God. For it is truly said, that God is not the Author of Evil: Not because he is no Author, but because he is no evil Author.

*The Heresies
that lessen
the Power of
God are of
three Degrees.*

ESSAY XXVII. *Of the CHURCH.*

WE every where meet with the Contradiction of Tongues out of the Tabernacle of God; but within that it is said, Men shall be protected from them. *Thou shalt protect them in thy Tabernacle from the Contradiction of Tongues.* Accordingly, which way soever we turn ourselves, there is no Determination of Controversies, except within this Tabernacle; that is the Unity of the Church. But observe, that in the *Tabernacle* there was an Ark; and in that Ark the Testimony, or Tables of the Law: so that the Shell of the Tabernacle is little, without the Kernel of the *Testimony*. The Design of the Tabernacle was to preserve and deliver the Testimony. In the same manner 'tis the Office of the Church to preserve and deliver down the Scriptures: but the Soul of the Tabernacle is the *Testimony*.

* See above, ESSAY XXII.

* See the Essay upon Unity in Religion, Sect. III. *sub finem.*

ESSAY XXVIII. Of DEATH.

*The Fear of
Death weak
and childish.*

I. **M**EN fear Death, as Children fear the Dark. And as that natural Fear in Children is increased by frightful Tales; so is the other. Certainly, the Contemplation of Death, as the Wages of Sin, and the Passage to another World, is pious and wholesome; but the Fear of it, as a Debt due to Nature, weak and empty. Groans, Convulsions, weeping Friends, Funeral Ceremonies, and the like, shew Death terrible: yet there is no Passion so weak, but conquers the Fear of it; and therefore Death is no such terrible Enemy. Revenge triumphs over Death; Love flights it; Honour aspires to it; Dread of Shame prefers it; Grief flies to it; Fear anticipates it. After *Otho* had slain himself, Pity, the tenderest of the Affections, moved many to die and follow him. Nay, *Seneca* judges a Man would die, tho he were neither valiant nor miserable; merely thro a weariness of doing the same things over and over again.

*Great Minds
despise it.*

'Tis no less worthy of notice, how little alteration the approaches of Death make in good Minds, who appear the same to the last. *Augustus* died with a Compliment; *Tiberius* in Dissimulation; *Vespasian* with a Jest; *Galba* with a Sentence; and *Septimius Severus* with a form of Dispatch. The *Stoicks* bestow'd too much Cost upon Death; and by their great Preparations made it appear more frightful. Whereas it is as natural to die, as to be born; and to an Infant, perhaps, the one is as painful as the other.

*How to di-
minish the
Pain and
Apprehension
of Death.*

3. He who dies in some earnest Pursuit, is like a Man wounded in hot Blood; and scarce feels the Blow. Whence to have the Mind fix'd and intent upon some good Object, lessens the Pain of Death. But above all, 'tis sweetest to depart when a Man has obtain'd his Ends, and worthy Expectations. Death also has this Advantage, that it opens the Gate to Fame, and extinguishes Envy.

S E C T.

S E C T. II.

ESSAYS UPON OECONOMICAL SUBJECTS.

ESSAY I. Of YOUTH, and AGE.

I. **A** Man young in Years, may be old in Hours; if he has lost no Time: but this rarely happens. Youth is generally like the first Thought, not so wise as the second: For there is a Youth in Mens Thoughts, as well as their Ages. Yet the Invention of young Men, is more lively than of old; and Imaginations stream into their Minds better, and as it were more divinely.

2. Natures disorder'd with much Heat, violent Desires and Perturbations, are not ripe for Action, till they have pass'd the Meridian of Life: as we see in *Julius Caesar*; and again in *Septimius Severus*, of whom 'tis said, *That his juvenile Years were full of Errors, or even Fury*¹; and yet he was almost the ablest Emperor of the whole List. But compos'd Natures may flourish even in Youth: as appears by *Augustus Caesar*, *Cosmus Duke of Florence*, and others.

3. On the other hand, Heat and Vivacity in old Age make an excellent Composition for Business. Young Men are fitter to invent than to judge; fitter for Execution, than for Counsel; and fitter for new Projects, than establish'd Business. For old Mens Experience directs them in things that fall within its reach; but misleads them in new Matters.

4. The Errors of young Men are often the Ruin of Business: whereas the Errors of old ones seldom go farther than this, that more might have been done, or sooner. Young Men in the Management of Business grasp more than they can hold; stir more than they can still; flie to the End, without well considering the Steps and the Means; absurdly follow certain Rules they have fallen upon by Accident; use violent Remedies at first; and lastly, what doubles all Errors, do not acknowledge or retract them; like an unruly Horse, that will neither stop nor turn. Old Men object too much, consult too long, venture too little, repent too soon, and seldom drive Business to a full Period; but content themselves with a Mediocrity of Success.

5. Certainly it were proper to mix old Men and young together in Business. This would prove useful in present, because the Advantages of both Ages might thus correct the Defects of either: and useful in future, because young Men might thus learn, while old ones govern'd. And lastly, it would be better for composing external Accidents; because Age procures Authority, as Youth does Favour and popular Esteem.

6. But

¹ *Juventutem agit erroribus, imo furoribus plenam...*

Young Men
more moral
than old ones.

6. But in Morality, Youth perhaps will have the Preheminence; as Age has in Policy. A certain Rabbi from this Text, *Your young Men shall see Visions, and your old Men shall dream Dreams*, infers, that young Men are admitted nearer to God, than old ones; because *Vision* is a clearer Revelation than *Dream*. And certainly, the more a Man drinks of the World, the more he is intoxicated with it; and old Age rather improves Men in the Powers of the Understanding, than in the Virtues of the Will and Affections.

Three Kinds
of early ripe
Genius's.

7. Some shew an over-early Ripeness in Youth, but soon fade and decay as they advance in Years. These are *first* such as have brittle Wits, the Edge whereof is soon turn'd; so *Hermogenes*, the Rhetorician, wrote Books that are extremely subtle, and soon after became stupid. A *second* Sort are those that have some natural Faculties, more becoming Youth than Age; such as fluent and florid Speech; which is laudable in the young, but not in the old. So *Tully* said of *Hortensius*, *He continued the same when he ought not*. A *third* kind is such as set out too fast at first; and have a greater Vivacity than succeeding Years can support: as was the Case of *Scipio Africanus*, of whom *Livy* says, *his latter Life fell short of his first*.

ESSAY II. OF MARRIAGE, and SINGLE LIFE.

That child-
less Men have
been beneficial
to the Publick.

1. **T**HE Man who hath a Wife and Children has given Hostages to Fortune; for they are Impediments to great Enterprizes, whether in the way of Virtue or Vice. Certainly the noblest public Works have proceeded from childless Men; who both in Affection and Fortune wedded and endowed the People. Yet it seems more reasonable that those who have Children should shew the greater Concern for Futurity; to which they know their dearest Pledges must be transmitted.

The Causes of
Mens living
single.

2. There are some, however, who having no Children, are regardless of their own Memory, terminate their Thoughts with themselves, and imagine the Care of Posterity belongs not to them. There are others that account a Wife and Children but as Bills of Charges. Nay, there are some rich covetous Men, who foolishly pride themselves in having no Children; in order to be thought so much the richer. But the most common Cause of living single is Liberty; especially in certain self-pleasing humorous Minds, which are so sensible of every Restraint, as almost to think their Girdles and Garters to be Bonds and Shackles.

The Advan-
tages or Dis-
advantages
of Celibacy
to the several
Professions.

3. Unmarried Men are the best Friends, best Masters, best Servants, but not always the best Subjects; for they are light to run away: and almost all Fugitives are Batchelors. Celibacy suits well with Ecclesiasticks; for Charity will hardly water the Ground, where it must first fill a Pool. 'Tis a thing indifferent in Judges and Magistrates: for if they should be facile

* *Idem manebat, neque idem decebat.*

* *Ultima primis cedebant.*

facile and corrupt, a Servant might prove much more rapacious than a Wife. As for Soldiers, I find that Generals in their Hortatives, commonly put them in mind of their Wives and Children. And the Contempt of Marriage amongst the *Turks* debases the common Soldiery. Certainly, Wife and Children are a kind of humanizing Discipline: and single Men, tho they are often more munificent and charitable, because their Fortunes are less exhausted, yet prove more cruel and hard-hearted; because their Tenderness is less called upon.

4. Grave Natures, led by Custom, and therefore constant, generally make uxorious Husbands. Thus it is said of *Ulysses*, that he preferr'd his old Woman to Immortality. Chaste Women are commonly proud and forward; as presuming upon the Merit of their Chastity. 'Tis one of the best Bonds, both of Chastity and Obedience in the Wife, if she think her Husband wise; which she will never do, if she find him jealous. Wives are young Mens Mistresses; Companions for middle Age; and old Mens Nurses. So that a Man may have a Reason to marry at any time¹. But he was reputed one of the wise Men, who being asked when a Man should marry; answer'd, *A young Man not yet, an old Man not at all.*

The Tempers best disposed for Matrimony.

5. It often happens, that bad Husbands have good Wives; whether the Husband's Kindness is in this Case more highly valued when it comes; or whether the Wife takes a Pride in her own Patience. However this be, if the bad Husband was of her own choosing, against the Consent of Friends, she will be sure to stifle her Sufferings, and varnish her Folly.

Why bad Husbands have often good Wives.

ESSAY III. Of PARENTS, and CHILDREN.

1. THE Joys of Parents are secret; so are their Grievs and Fears: They cannot utter the one, and will not utter the other. Children sweeten Labours; but they imbitter Misfortunes: They increase the Cares of Life; but mitigate the Thoughts of Death. Perpetuity by Generation is common to Brutes; but Perpetuity by Memory, Deserts and Works, is proper to Man. And surely the noblest Works and Foundations have proceeded from childless Men; who endeavoured to express the Images of their Minds, where those of their Bodies failed. Whence the Care of Posterity appears greatest in those that have no Posterity. The first Ennoblers of their Families are most indulgent towards their Children; beholding them as the Continuance, not only of their Species, but also of their Works; and so both Children and Creatures.

The State of Parents compared with those that are without Children.

2. The Degrees of Affection in Parents towards their Children is often unequal, and sometimes unjust; especially in the Mother. So *Solomon* says, *A wise Son rejoiceth his Father, but a foolish Son is the heaviness of his Mother.* We shall sometimes see, in a House full of Children, one or two of the eldest respected, and the youngest fondled; whilst others in the middle seem

The Affection of Parents often unequal to their Children.

¹ *Socrates* being ask'd by one whether he should marry; is said to have answer'd, *Do or do not, you will repent it.*

seem in a manner overlook'd, who nevertheless frequently prove the best.

Parents to be liberal to their Children.

3. The Illiberality of Parents towards their Children, is a pernicious Error; as it renders them base; acquaints them with Shifts; makes them herd with mean Company; and riot more when they come to Plenty. It is, therefore, proper that Parents should keep a strict Authority towards their Children, but a slack Purse.

Emulation not to be stirr'd up betwixt Brothers.

4. There is an imprudent Custom on foot among Parents, Schoolmasters and Servants, of breeding Emulation between Brothers, during Childhood; which frequently turns to Discord when they are Men, and disturbs Families.

No great difference betwixt Sons and Nephews.

5. The *Italians* make little difference between Children and Nephews, or near Relations; but provided they be of the same Blood, they judge it not very material to have them their own Issue. And to say the Truth, in Nature 'tis much the same; so that we often see a Nephew resemble an Uncle, or a Kinsman, more than his own Parent.

Parents to determine early the Course of Life for Children.

6. Let Parents fix their Children young in the kind of Life they intend them: for at this time they are most flexible. And let them not in the Choice pay too great a Regard to the Inclination of their Children; as imagining a Child will take best to that which he likes most. If indeed the Affection or Aptness of the Child be extraordinary, 'tis proper not to cross it; but generally the Precept is good, *Choose what is best, and Custom will make it pleasant and easy*. Younger Brothers are commonly fortunate; seldom or never, where the elder are disinherited.

ESSAY IV. Of CUSTOM, and EDUCATION.

The Power of Custom only matched by votary Resolution.

1. **M**EN commonly think according to their Inclinations; speak according to their Learning, and imbibed Opinions; but generally act according to Custom. And therefore, as *Machiavel* well observes, tho in a bad Example, there is no trusting to the Force of Nature, nor great Protestations, unless they are strengthen'd by Custom. His Example is, that for going thro with a desperate and cruel Undertaking, no Dependence should be had upon the Fierceness of a Man's Nature; or upon daring Promises, much less Oaths; but that a Person should be chose for the purpose, who had been accustom'd to Blood and Slaughter. *Machiavel* knew nothing of a Friar *Clement*, nor a *Ravillac*, nor a *Jauregny*, nor a *Baltazar Gerard*, nor a *Guy Faux*; yet his Rule holds good, that Nature, and all the Ties of Words, are not so strong as Custom. But Superstition is now arrived to such an height, that the staunch Assassin is as remorseless as the harden'd Butcher; and votary Resolution is become, even in matter of Blood, equivalent to Custom.

2. In all other Cases the Power of *Custom* is manifest; so that one might wonder to hear Men profess, protest, engage, speak high, and yet go on to act in their accustom'd manner, regardless of all that had pass'd; as if they were mere Images, or Machines moved only by the Wheels of Custom. The Tyranny of *Custom* appears in many other Particulars. The *Indian* Gymnosophists, both ancient and modern, quietly laying themselves upon a Pile of Wood, were sacrificed by Fire: And even the Women strove to be burnt with their Husbands. The *Spartan* Boys were anciently scourged upon the Altar of *Diana*, almost without a Cry or a Groan. I remember, in the beginning of Queen *Elizabeth's* Reign, a condemn'd *Irish* Rebel petition'd the Deputy to be hang'd in a With, and not in a Halter; because a With had been used in executing former Rebels. There are Monks in *Russia*, who for Penance will sit a whole Winter's Night in a Vessel of Water, till they are wedged between Ice. And many surprising Examples may be produced of the Force of *Custom*, both upon the Mind and Body. Since *Custom*, therefore, is the principal Ruler of human Life, let Men endeavour to engraft good Customs.

Instances of the Tyranny of Custom.

3. Certainly that Custom is most powerful, which is begun in Youth. This we call *Education*; tho no more than an early Custom. So, the Tongue is more pliant to all the Expressions and Sounds of the Languages, and the Limbs more agile and fit for all Motions, in Youth, than afterwards. For those who learn late, cannot so well take the Ply; except such Minds as have not suffer'd themselves to fix, but are kept open to receive continual Improvement: which is exceeding rare.

Good Habits to be acquired early.

4. But if the Force of Custom, when simple and separate, be so great; the Force of *Custom*, when conjoined and associated, is much greater. For here Example teaches, Society refreshes, Emulation stimulates, and Glory raises: So that here the Force of *Custom* is in its Exaltation. Certainly, the great increase of Virtues in human Nature, depends upon Societies well instituted and disciplin'd. For good Governments, and good Laws, nourish Virtue when grown; but do not much mend that Seed. The Misfortune is, that the most effectual Means are sometimes applied to the least desirable Ends.

The Force of Custom greatly in Society.

ESSAY V. Of CONVERSATION and DISCOURSE.

1. SOME in Discourse rather affect being commended for Wit, in maintaining all Arguments, than for Judgment, in discerning the Truth; as if it were a Praise to find what might be said, and not what should be concluded. Some abound in certain Sets of common Places; but in other Subjects want Variety. This kind of Poverty is usually irksome, and, when once discovered, ridiculous. The more honourable part of Discourse is to give the Occasion; and again to moderate and pass to another Subject: For this is leading the Dance. 'Tis proper in Conversation to vary the Subject sometimes, and intermix Discourse of the present Occasion with Dispute; Relations with Arguments; Questions

Errors and Poverty in Conversation, how to be avoided.

with Opinions; and Jest with Earnest: For 'tis cloying to dwell long upon any thing.

*Jesting, how
to be regulated.*

2. As for *jesting*, there are certain things that ought to be privileged from it; such as Religion, Affairs of State, great Personages, private Business of Importance, and all Cases of Pity. Yet some think their Wits asleep, when they are not darting out their Stings. But this Humour should be curb'd. And, in general, a Difference is to be observed between what is salt, and what bitter. Certainly, he who has a Satyrical Vein, and makes others afraid of his Wit, had need be afraid of their Memory.

*Rules for the
Conduct of
Discourse.*

3. To ask many Questions is the Way to improve ones self, and please others: especially if the Questions be suited to the Skill and Capacity of the Respondent; who will thus have an Opportunity of shewing his Knowledge, whilst the Querist gains Information. But these Questions should not be troublesome; otherwise the Querist acts the Examiner: He who would preserve the Dignity of familiar Discourse, must give others their turn to speak. And if any one would engross all the Talk to himself, let another find Ways to break him off, and bring the rest on; as Musicians do with those that dance too long. If you sometimes dissemble a Knowledge of what you are supposed to know; you shall another time be thought to know what you do not. A Man should seldom speak of himself; and then it should be with Judgment. I knew a Person who would frequently say, in the way of Irony, *He must needs be a wise Man, he speaks so much of himself!* There is scarce more than one Case wherein a Man may decently commend himself; and that is, by commending the Virtue in another, which himself lays claim to. Stinging Reflections should be sparingly used: For Conversation ought to be as a Field to walk in; not as a Road that leads home. Discreet Discourse is better than Eloquence; and to speak agreeably, is better than to affect choice Words, or a regular Order. A good continued Speech with bad Interlocution, shews Slowness; and a good Reply without the Talent of making a continued Speech, discovers Poverty, and the want of a grounded Knowledge. So we see in Brutes, those that are slowest in the Course, are nimblest at the Turn; as the Hare and the Greyhound. To use too many Circumstances before the Matter of the Speech is enter'd upon, proves tedious; and to use none at all, is abrupt and displeasing.

ESSAY VI. Of SUSPICION.

*The Incon-
veniences of
Suspicion.*

1. **S**uspicious amongst Thoughts, are like Bats amongst Birds; and never fly but by Twilight. Certainly they ought to be repress'd, or well guarded: For they cloud the Understanding, alienate Friends, and clash with Business; so that it can neither go current nor constant. They dispose Kings to Tyranny, Husbands to Jealousy, and even the prudent to Irresolution and Melancholy.

2. They

2. They are Defects rather of the Head than the Heart: For they enter the most courageous Natures; as appears by King *Henry VII.* who was both extremely suspicious and courageous. But in such a Composition they do little hurt: being here seldom admitted without examining into their Foundation. But in fearful Tempers they reign too much. *Is not always owing to Fear.*

3. Nothing makes a Man so suspicious as to know little: whence the best Remedy against Suspicion is Enquiry: For Darkness and Smother feed the Distemper. What would Men have? Do they think the Persons they employ and converse with are Saints, or Angels? Can we be ignorant that they pursue their own Ends; and will always have the first Regard to themselves? There is therefore no better Method of moderating Suspicions, than to provide against them as if they were true; yet bridle them as if they were false: for so far Suspicion may be of use, as to put Men upon their Guard; that tho the thing suspected were true, it should not hurt them. *Its Remedies.*

4. The Suspicions that the Mind forms to itself are no more than Buz- *An Explanation to be sought from the Person suspected.* zes; but those kept up by the Artifice of others, or put into Mens Heads by Rumours and Whispers, have Stings. The direct way out of this thick Wood of Suspicions is, a frank Declaration of them to the Person suspected: For thus we are sure to know more of their Justness or Unjustness, than before; and at the same time to render the suspected Person more cautious of giving us farther Occasion of Suspicion. But this should not be done to Men of base Natures; who, if they find themselves once suspected, will never be true. The *Italians* have a Proverb, *Sospetto licentia fede*; as if *Suspicion* dissolved *Fidelity*: Whereas it should rather provoke the suspected Person to clear himself.

ESSAY VII. Of CUNNING.

1. **B**Y *Cunning* I understand a certain sinister or crooked Wisdom: For *Cunning's what.* there is a great Difference between a *cunning Man* and a *wise Man*; not only in point of Probity, but also in point of Ability. There are those who can pack the Cards, and yet not play well; and so some are good at canvassing and bridling of Factions, who are otherwise weak Men. Again, 'tis one thing to understand Persons, and another to understand Things: For many are versed in Mens Humours, yet incapable of real Business; as having studied Men more than Books: and such are fitter for Practice than for Counsel; as excelling only in the way they have been used to. And because these cunning Men are like Haberdashers of Small Wares, it may not be amiss to examine their Shops.

2. 'Tis a piece of Cunning to glance an observing Eye upon the Countenance of the Person spoke with; after the manner directed by the *Jesuits*: For many prudent Men have secret Hearts and transparent Countenances. But this should be done with a modest Dejection of the Eye by turns; as the *Jesuits* practise it. *The Cunning of the Eye.*

*Cunning for
procuring
Dispatch of
Business.*

3 Another Artifice is, when you desire to have a Matter immediately dispatch'd, to entertain and amuse the Person with Discourse upon a different Subject; that he may be thus prevented from making Difficulties and Objections. I knew a Secretary of State, who whenever he came to Queen *Elizabeth* with Bills to sign, would first enter her into some serious Affairs of Government; that she might be the less intent upon the Bills. The like Advantage may be obtained by proposing things of a sudden, when the Person applied to is in too much haste to consider thoroughly of them.

*For quashing
an Affair.*

4. When a Man would cross a Business which he suspects might be effectually proposed by another, he often pretends to be well affected to it; but proposes it in such a manner, as to quash or disturb it.

*For causing a
Question.*

5. To break off in the middle of a Discourse, as if a Man took himself up, raises a Curiosity in the Hearer to know further. And because a thing has a greater Effect when forced out by a Question, than when it is voluntarily offer'd; a Bait may be laid for a Question, by an unaccustomed Change of the Countenance. This *Nebemias* seems to have practised, *who had not till that time been sad before the King.*

*For relating
disagreeable
Matters.*

6. In the first relating of disagreeable News, or Matters that may be heinously taken, 'tis proper to break the Ice by the Means of others, whose Words are of less weight; and reserve the Voice of greater Authority, to come in as by chance, upon a Question raised by the occasion: as in the Case of *Narcissus* relating to *Claudius*, the Marriage of *Messalina* and *Silius*.

*To avoid be-
ing seen.*

7. In Matters where a Man would not himself be seen, 'tis a point of Cunning to borrow the Name of the World; and introduce them with a *they say*. I knew one who, in writing of Letters, would constantly put the most material Points in the Postscript; as if they were things he had almost forgot. I knew another, who in Conversation would pass over the Thing he most intended; take his Leave; but come back again, and speak of it, as if it before had slipped his Memory.

*To gain an
Opportunity.*

8. Some lie in wait to be surpriz'd by the Person they have a Design upon; and take care to be found with a Letter in their Hand, or doing somewhat unusual, in order to be question'd about the Matter they would open.

*To lay a Bait
for one's Ad-
versary.*

9. 'Tis a piece of high Cunning to let fall Words in one's own Person, on purpose for another to catch, and use to his Ruin. I knew two Competitors for the Secretary's Place in Queen *Elizabeth*'s time, who nevertheless kept Terms with each other, and often conferr'd upon the Subject of their Rivalship. At length one of them said, that *to be Secretary in the Decline of a Monarchy was a ticklish thing, and a kind of Honour he did not affect*. These Words, which were ensnaringly spoke, the other presently catch'd; and in Simplicity used, as his own, among his Friends. The other took hold of this, and found means to have the Queen acquainted with what his Competitor had thus given out, about the *Decline of a Monarchy*; which the Queen so resented (as then thinking herself in the Glory of her Reign) that she would never after hear of his Suit.

10. There is a Cunning which we in *England* call the *turning of Cat in the turning of pan*; which is, when what a Man says to another, he pretends another had said to him: and 'tis not easy when such a Matter passed between two, to make it appear from which of them it originally came.

11. There is an Artifice of glancing at others, by justifying ones self in Negatives; as to say, *This I do not*. And some have such a ready Talent at Story-telling, that there is nothing they would insinuate, but they can wrap it up in a Tale, whereby they keep themselves secure; as affirming nothing expressly, and at the same time cause the thing they intended to be spread with the greater Pleasure.

12. 'Tis an useful Cunning for a Man to couch the Answer he desires in the others own Words and Propositions; for this brings over the other with greater Ease.

13. 'Tis strange how long some Men will wait to speak what they intend; how far they will fetch it; and how many other Matters they will beat over to come near it. This is a thing of great Patience, but of much Use.

14. A sudden, bold and unexpected Question sometimes surprizes a Person, and lays him open. Thus a Man who went by a false Name, another coming behind him and calling him by his true one, is said to have forgot himself, and presently look'd back.

15. But these small Wares, and petty Points of Cunning, are numerous. It were proper, however, to make a List of them; for nothing proves more mischievous in States, than to have cunning Men pass for wise.

16. There are those who know the Stops and Pauses of Business, but cannot enter the Heart of it; like some Houses that have convenient Stairs and Galleries, but never a good Room. Hence such Men find commodious Exits in the Conclusion of Debates; tho they are no ways able to examine and deliberate Matters. Yet they commonly take advantage of their Inability; and would be thought Genius's fitter to direct and determine, than to dispute. And some depend rather upon the abusing and tricking of others, than upon the Soundness of their own Proceedings. But *Solomon* says, *The Fool turneth aside to Deceit, whilst the prudent Man looketh well to his Goings*.

ESSAY VIII. Of SELF-CUNNING.

1. **T**HE Ant has much Self-cunning, but proves a mischievous Thing in a Garden: and certainly Self-lovers hurt the Publick. We should therefore divide equally betwixt Self-love and publick Spirit. Be true to thyself, but not injurious to others; especially not to thy King and Country. 'Tis groveling for a Man's Actions to center in himself.

2. It is more tolerable in Princes to refer all things to themselves, because they act in a publick Capacity; but Selfishness is highly pernicious in a Subject or Servant of the State: for all the publick Affairs that pass through such Persons.

such Hands, will be bent to selfish Ends ; which must often prove eccentric to the Ends of the governing Power.

No prime
Officers to be
chose of this
Character.

3. Therefore let Princes choose such Ministers and Servants as are not selfish ; unless where the Office is secondary. What makes the Effect more pernicious is, that it preserves no Proportion. It is a wide Disproportion, where the Servant's Advantage is preferred to the Master's ; but a violent Extreme, where a small Advantage of the Servant is preferred to a great one of the Master. Yet this is frequently the Case in corrupt Ministers, Treasurers, Ambassadors, Generals, and other selfish Officers and Servants ; who clap a Bias upon the Bowl of their own petty Ends, which draws aside their Masters important Affairs. The Advantages such Servants receive generally square with the Model of their Fortunes ; but the Damage they do in Exchange is according to the Model of their Master's Fortune. For it is the Temper of such violent Self-lovers *to fire a House, so they can but roast their Eggs*. Yet such Ministers often keep in their Prince's Favour, because they study but these two Points, to please him, and profit themselves ; and they will betray his Interest for the Sake of either.

The Self-cun-
ning often un-
fortunate.

4. Self-Cunning is a depraved Thing in many of its Branches. 'Tis the Cunning of Rats, that will leave a House somewhat before it falls : 'Tis the Cunning of the Fox, that turns out the Badger, who made the Den : 'Tis the Cunning of the Crocodile, who weeps over his Prey : But what is most observable, extreme Self-lovers, who, as *Cicero says* of Pompey, are without a Rival in their Love, generally end unfortunate ; and, as they sacrificed to themselves through the whole Course of their Lives, are at length sacrificed by the Inconstancy of Fortune ; whose Wings they thought to have clipped by their hopeful Cunning.

ESSAY IX. *Of affecting the Appearance of Wisdom.*

That Men
differ in point
of Wisdom.

1. IT is a receiv'd Opinion, that the *French* are wiser than they appear ; and that the *Spaniards* appear wiser than they are : But however it be between Nations, 'tis certainly thus between Man and Man. For, as the Apostle says of Godliness, *having the Form of Godliness, but denying the Power thereof* : so there are certain *Solemn Triflers*, no way deserving the Name of wise, that deliver Levities with Labour.

The Artifices
of those who
affect to seem
wise.

2. 'Tis a ridiculous thing to Men of Sense, and a Subject fit for Satyr, to see into how many Shapes these Formalists will change ; and what Perspectives they use to make Surfaces appear as Solids. Some are so close and secret as only to shew their Goods by a half-light ; and seem to intimate more than they speak ; and when they are conscious they talk of a Subject they do not understand, yet pretend to know what they may not safely utter. Some help their Discourse with Looks and Gestures, and would shew themselves wise by Signs. Some affect to shine by talking big and peremptory, nimble taking for granted the Things they can-
not

* *Magno canatu magnas nugas.*

not prove. Others will seem to despise, as impertinent or trifling, whatever is beyond their Sphere; and thus put off their Ignorance for Judgment. Others are never without their Distinctions; and generally skip over the Matter, by puzzling the Company. Such Men in Conversation commonly take the negative Side; and would raise a Character by starting Difficulties, and foretelling Inconveniencies: because, when Propositions are denied, there is an End of them; but if proved, fresh Work is cut out. So that this false Wisdom proves the Bane of Business.

3. In short, no breaking Merchant, no secret Bankrupt has so many Shifts to keep a Credit, as these pretending wise Men to support their darling Sufficiency. And, though such Men may easily catch the Opinion of the Crowd; yet let them never be trusted in serious Business, or Affairs of Weight. Certainly Business is better conducted by Men that commit some Absurdities, than by such disagreeable, empty Formalists.

*The seeming
wise Men not
to be trusted
in serious
Business.*

ESSAY X. Of DELAYS.

1. Fortune is like the Market, where, if Men can wait a little, the Price will fall. 'Tis sometimes like the *Sibyll's* Offer, which first presents the Commodity entire, then consumes a Part, and still keeps up the Price. For Opportunity first offers the Handle of the Bottle, then the Belly.

*The Nature
of Fortune.*

2. There is no greater Wisdom than rightly to time the Beginnings of Things. Dangers are no longer light, if they once seem light: and more Dangers have deceived Men, than forced them. Nay, it were better to meet some Dangers half way, than to be perpetually enquiring after their Motions, and watching their Approach; for in watching too long, Men are apt to fall asleep.

*The proper
Conduct in
Dangers.*

3. On the other hand, to be deceived by long Shadows, as some have been, when the Moon was low, and shone on their Enemies Back, and so to shoot off before the Time; or to provoke Dangers, by over hastily arming against them, is the contrary Extreme.

*Dangers not
to be over-
rated, or be
provoked.*

4. The Ripeness or Unripeness of the Occasion must be well considered; and generally 'tis best to commit the Beginnings of all great Actions to *Argus* with his hundred Eyes, and the Ends to *Briareus* with his hundred Hands: first to watch, and then to speed. *Pluto's* Helmet, which renders the Politician invisible, is Secrecy in Counsel, and Dispatch in Execution. For when things are ripe for Execution there is no Secrecy comparable to Dispatch.

*The Ripeness
of Opportuni-
ty to be seiz-
ed.*

* See the Fable of *Perseus* explained, Vol. I. Pag. 64. See also ESSAY XI.

ESSAY XI. Of DISPATCH in BUSINESS.

Affected Dispatch pernicious.

1. Immature and affected Dispatch generally proves the Bane of Business. 'Tis like what the Physicians call hasty Digestion; which fills the Body with Crudities, and the secret Seeds of Diseases. Therefore we are not to measure Dispatch by the Time bestowed in Consultation; but by the Progress made in the Business consulted about. And as in the Course, it is not the large or the high Step, but the low and equable Motion of the Feet, that constitutes Fleetness; so in Business, the keeping close to the Matter, and not greedily taking too large a Part at once, procures Dispatch.

The false Dispatch.

2. Some only affect the Appearance of doing a great deal in a little Time, or contrive false Periods of Business, that they may seem Men of Dispatch. But 'tis one thing to save Time by contracting, and another by breaking off. Business treated at several Meetings, generally fluctuates, backwards and forwards, with great uncertainty. I knew a wise Man, who, when he found People over hasty, would constantly say to them, *Stay a little, that we may have done the sooner.*

The true.

3. On the other hand, true Dispatch is a valuable Thing. For Time is the Measure of Business, as Money is of Commodities; and therefore Business will be dear bought, where Time is too long delay'd. The *Spartans* and *Spaniards* have been remarked for Slowness. Let my Death come from *Spain*, says the Proverb; for then it will be long in coming.

To procure Dispatch in the Relator.

4. Lend a patient Ear to the first Informers in Business; and rather direct them in the Beginning, than interrupt them often in the Thread of their Discourse: for a Man put out of his own Method, will ramble, and prove more tedious while he recollects his Memory, than if he had been suffered to proceed without Disturbance. But sometimes the Moderator is more troublesome than the Relator.

By cutting off superfluous Speeches.

5. Repetitions generally waste Time, which however is never saved more than by often repeating the State of the Question; for this stifles many impertinent Speeches in the Birth. Prolix and florid Harangues are as unfit for Business, as a long Robe for a Race. Prefaces, fine Transitions, Apologies, and other personal Speeches are great Wasters of Time; and, tho they may seem to proceed from Modesty, are in reality Ostentation: yet beware of coming bluntly to the Matter, when there is any Obstruction or Impediment in Mens Wills; for pre-possession of Mind always requires a preparatory Speech, like a Fomentation to make the Unguent enter.

By a right Disposal of Business.

6. Above all, Order, Distribution, and an apt singling out of Parts is the Life of Dispatch, provided the Distribution be not too subtle; for he who does not divide, will never enter well into Business: and he who divides too much, will scarce come out of it clearly. To choose Time, is to save Time: for an unseasonable Motion is but beating the Air, and a Loss of Time.

There

7. There are three parts of Business; viz. the *Preparation*, the *Examination* or *Debate*, and the *Execution*; where, if Dispatch is intended, let the Examination be the Work of many; but the Preparation and Execution the Work of few. *The three Parts of Business, how to be managed.*

8. To enter upon Business from some Scheme drawn up in Writing, generally promotes Dispatch; for tho such a Scheme should be wholly rejected, yet even this affords more Direction, than to have had no definitive Scheme at all: as Ashes are more fertilizing than Dust.^w *Business to proceed upon some Plan.*

ESSAY XII. Of CARES.

1. IF Cares be not moderated they frustrate themselves, oppress the Mind, confound the Judgment, and run out into Prophaneness; for they shew that a Man promises himself a kind of Perpetuity in the Affairs of this World. But Life being so short, we should be Men of to day, and not of to morrow, and seize Time as it comes; leaving Futurity to be present in its turn. Care for immediate Things is, therefore, the principal Business of Men; and *sufficient to the day is the evil thereof*. *Cares to be moderated.*

2. Moderate Cares, however, whether of a publick or private Nature, are not to be condemned; but they may have two Excesses. The *first* is, when our Cares are extended to too great a length, and to Times very remote; as if by our Care we could bind the divine Providence, which was always an unusual, and reckoned an unprosperous thing, even among the Heathens: for it has generally happened, that they who attributed much to Fortune, and kept themselves on the watch for present Occasions, met with great Success: whereas they who by Anxiety, and deep Forethought, trusted they had considered and provided for every thing, have proved unfortunate. *Two Excesses of Cares.*

3. The *second* Excess is, when we dwell longer upon Cares than is necessary for a just Deliberation and Determination. For what Man can possibly take even so much Care as shall suffice to clear his own Way, or to judge that he cannot clear it; but must often beat over the same Tracks again to no purpose; run round in the same Wheel of Thought; and yet vanish from himself at last? And this kind of carking Care or Sollicitude, is a Thing directly contrary to all Measures, both divine and human. *The second Excess.*

ESSAY XIII. Of HOPE.

1. 'TIS truly said, that the Sight of the Eye is better than the Progression of the Mind; for a distinct and clear Perception of Particulars, puts the Understanding into a better Frame than progressive and *Hope and Fear deceitful Passions.*

^w The Meaning seems to be, that *Particulars* are more instructive than *Generals*; as Dust is a general Earth, and Ashes a particular Species.

endless Imaginations. But it is the Nature of the Mind, even in the gravest Tempers, from a Perception of Particulars, immediately to start forwards, and bound and leap, and promise itself, that every thing else will prove like what gives the present Impulse: whence if the Sensation be of a Good, Men easily run out into extravagant Hopes; and if of an Evil, into extravagant Fears. But Hope and Fear are two bad Prefagers, and not to be trusted.

*Hope almost
useless in Ca-
ses of Prospe-
rity.*

2. There is, however, some Use of Fear; as this prepares the Mind for suffering, and whets the Industry*. But Hope seems to be almost useless; for to what purpose serves the Anticipation of good Fortune? If the Success prove less than was hoped, it seems to be rather a Loss than a Gain; as falling short of the thing expected. If the Success be adequate to the Hope; yet even thus the Flower of the Benefit is cropped by Hope; and fades in the Enjoyment. Lastly, If the Success be greater than was hoped, there seems indeed to be some Advantage received; but were it not still better to have had the Principal without hoping at all, than the Interest, by hoping too little? And this is the Operation of Hope in Matters of Prosperity.

*The pernicious
Effect of Hope
in Adversity.*

3. In Matters of Adversity, Hope breaks the true Courage of the Mind: for there is not always an Occasion of hoping; and with any, even the least Desertion of Hope, almost the whole Support of the Mind is gone. It also lessens our Dignity to bear Misfortunes by a certain Alienation and Error of the Mind; and not with Firmness and Strength of Judgment. 'Twas therefore wrong in the Poets to make Hope the Antidote and Mitigator of human Calamities; when in reality it rather exasperates, multiplies, and renews them.

*Mens Minds
distempered
by Hope.*

4. The Generality, however, give themselves wholly up to these Imaginations of Hope, and endless Progressions of the Mind; and proving unthankful for things past, and almost forgetful of the present, solely depend upon those that are future; which is the worst Disease, and maddest State of the Mind.

*In what Ca-
ses Hope may
be allowed.*

5. It may be asked, is it not better, since Things are placed in Uncertainty, to expect the best, and rather to hope than despair; because Hope procures the greater Tranquillity to the Mind? I answer, that in all Delay and Expectation, I judge a serene and steady State of the Mind, arising from a due Regulation and Composure thereof, to be the principal Strength and Support of human Life; but reject the Tranquillity which depends upon Hope, as a weak Thing. Tho it may not be improper, from a sound and sober Conjecture, to presuppose and foresee both good and bad Fortune, that we may the better suit our Actions to the Probability of Events; provided this be made the Office of the Understanding and Judgment, and is attended with a just Sway of the Affections.

6. But

* Non ulla Laborum,

O virgo, nova mi facies, inopinave surgit:

Omnia praecepi, atq; animo mecum ante peregi.

SECT. II. OECONOMICAL ESSAYS.

ITS

6. But where is the Man whom Hope has so restrained, that when, from a vigilant and sound Use of his Understanding, he has predicted to himself the better Fortune, as the more probable; does not rest upon the Anticipation, and indulge pleasing Thoughts thereof, as so many pleasing Dreams? And this is what renders the Mind light, tumid, irresolute, and wandering: wherefore all Hope should be employed only upon a future Life in Heaven. But for this World; the purer our Sensations of the present Things are, and the freer from all Infection and Tincture of the Imagination; the more does a wiser and better Spirit forbid us to cherish any long Hopes of a Life so extremely short.

*The proper
Object of
Hope.*

ESSAY XIV. Of FORTUNE.

1. **A**ccident and Chance have certainly a Power over the Fortunes of Men: we mean such Accidents as the Favour of the Great; Opportunity; the Death of others; Occasions suited to certain Virtues, &c. tho still a Man's Fortune chiefly depends upon himself. The most frequent external Cause is, that the Folly of one Man proves the Fortune of another: for we never prosper so suddenly as by the Errors of others.

*Fortune often
accidental.*

2. Open and manifest Virtues procure Praise; but secret and hidden ones produce Fortune. These are certain nameless Talents of extricating ones self; where there is no Stickage in a Man's Temper, but the Wheels of his Mind move along with those of his Fortune. He therefore who looks sharply and attentively, may see Fortune: for tho she be blind, yet herself is not wholly invisible. The Way of Fortune is like the *Milky-Way*; a Cluster of many small Stars, not separately visible, but luminous all together: for they are a Number of little, and scarce discernable Virtues, or rather Faculties and Habits, that render Men fortunate. The *Italians* note some of them, and such as one would little expect. When they speak of a Person whose Fortune they will answer for; they add to his other Qualities, that he has *Poco di Matto*: And certainly there are not two more fortunate Properties, than to have a little of the Fool, and not too much of the Honest. Hence extreme Lovers of their Country, or Prince, never were, nor can be fortunate: for when a Man places his Thoughts without himself, he cannot well go his own Way.

*Certain Ha-
bits procure
Fortune.*

3. Sudden Fortune makes Men enterprising, and somewhat turbulent; but an exercised Fortune makes them prudent and able. Doubtless, Fortune is to be honoured and respected, tho it were only for her Daughters, Confidence and Reputation: for Felicity breeds Confidence in a Man's self, and Reputation in others towards him.

*The Effects of
sudden and
exercised For-
tune.*

4. Prudent Men, to decline the Envy which their own Virtues might occasion, attribute all to Providence and Fortune; for thus they may assume them the more freely, and with the better Grace: Besides, it adds a kind of Majesty to a Man, that he should seem to be the Care of the higher Powers.

*How to de-
cline Envy.*

Powers. So *Cæsar* said to the Pilot in a Tempest, *Thou carriest Cæsar and his Fortune*: So *Sylla* chose the Name of *Happy*, not of *Great*. And it has been observed, that those who openly ascribed too much to their own Wisdom and Policy, have ended unfortunate.

A smooth Fortune procurable.

5. Certainly, as *Plutarch* observes of *Timoleon*, the Fortunes of some Men are like *Homer's* Verses, which run smoother than those of other Poets: and to effect this, in great measure, is doubtless in a Man's own Power¹.

ESSAY XV. Of EXPENCE.

Expences how to be regulated.

1. **T**HE Use of Riches is Expence; and the End of Expence is Honour and worthy Actions: So that extraordinary Expence must be limited by the Worth of the Occasion: for voluntary Poverty should be sometimes suffered for the sake of ones Country; as well as for the Kingdom of Heaven. But ordinary Expences ought to be limited by a Man's Estate, and so regulated as to keep within the Returns, and not be subject to the Fraud and Abuse of Servants; but the Bills to fall short of the Estimation. Certainly, if a Man would keep even hand, his ordinary Expences should be but half his Income²; and if he would grow rich, but a third.

Accompts to be inspected.

2. 'Tis no Meanness for the greatest Men to inspect their own Accompts. Some decline it, not so much out of Sloth, as Fear to find themselves bad: but Wounds are not cured without searching. He who cannot be his own Steward, should make a prudent Choice of the Servants he employs, and change them often; for new ones are more timorous, and less subtle. He who looks into his Accompts but seldom, should, as much as possible, bring both his Income and Expence to Certainities.

Expences to be balanced.

3. If a Man be expensive in one way, he should be saving in another: Thus, if he exceed in Diet, let him save in Apparel: If he be profuse in the Hall, let him spare in the Stable, &c. For to be profuse in all kinds of Expence, can scarce end but in Ruin.

The Way of redeeming a mortgaged Estate.

4. A Man may as well hurt himself by clearing an incumber'd Estate too soon, as by letting it run too long: for hasty selling is commonly as disadvantageous as the paying of Interest. Besides, he who redeems all at once, is in danger again; because now finding himself releas'd, he will be apt to return to his former Customs: But he who clears by degrees, thus procures a Habit of Frugality, and at once redeems both his Mind and Estate. Certainly, he who would repair a decay'd Estate, should not despise even the smallest Things: and in general, 'tis less dishonourable to abridge petty Expences, than stoop to petty Gains.

5. A

¹ See this Subject farther prosecuted in the *De Augment. Scientiar.* §. XXV.

² Reserving the other against Contingencies, Losses, Sicknes, &c.

5. A Man should be very cautious of beginning those Expences, which if once begun will continue; but may be more liberal on such Occasions as are not likely to return^a. *Where Liberality may be well placed.*

ESSAY XVI. Of USURY; or lending upon Interest.

1. THERE are many witty Investives against Usury. But since there is a Necessity of Borrowing and Lending; and Men are so hard of Heart as not to lend *Gratis*; it follows that Usury must be permitted. There are but few who have treated solidly and usefully of this Subject. The best way is, to set before us the Conveniencies and Inconveniencies of Usury; that the Good may be either weighed or separated: And again, to beware that whilst we receive a Benefit from Usury, we be not led into Snares. *The best Way of understanding the Nature of the Subject.*

2. The *Inconveniencies* of Usury are these: (1.) It lessens the Number of Merchants; because were it not for this lazy Trade of Usury, Money would not lie still, but be chiefly employ'd in Trade; which is the *Vena Porta* of Wealth to a State. (2.) It impoverishes the Merchant: for, as the Farmer cannot cultivate his Ground so well, if his Rent be large; so the Merchant cannot trade so well, if he pays great Interest for Money. (3.) It lessens the Customs; which ebb or flow with Commerce. (4.) It brings the Coin of the Kingdom into a few Hands: for the Usurers Profit being certain, and that of others uncertain, at the End of the Game most of the Money will be in the Box; whereas it is a Maxim, that a State always flourishes most when Money is not hoarded, but spread. (5.) It sinks the Price of Land: for Money is either employ'd in Trade or Purchasing; but Usury seems to intercept them both. (6.) It cramps all Industry, Improvement, and new Inventions; wherein many would be employ'd, if it were not for this Slug. (7.) And lastly, it is the Canker and Ruin of many Estates; which in time occasions a national Poverty. *The Disadvantages of Usury.*

3. The *Advantages* of Usury are these: (1.) However in some Respects it may hurt, yet in others it promotes Trade; the greatest part whereof is carried on by young Merchants, upon borrowing at Interest: whence if the Usurer either call in, or refuse his Money, a great Stagnation of Trade will presently ensue. (2.) If this easy borrowing upon Interest did not relieve Men in their Necessity, they would soon be reduced to the utmost Extremities; and forced to sell their Lands or Goods at an under Price: And thus, whereas Usury does but gnaw upon them, these hasty Sales would devour them. Mortgaging or Pawning will here afford no great Relief: for either Men will not take Pledges without Use; or if they do, will act to the Rigour, and take the Forfeit, in case the Payment be not punctual. I remember a hard-hearted rich Man, who used to say; *The Devil take this Usury; it keeps us from Forfeitures of Mortgages and Bonds.* (3.) Lastly, 'Tis Vanity to conceive there should be an easy borrowing *Its Advantages.*

^a See the Essay upon Riches; viz. ESSAY XVII. of the present Sect.

rowing without Use : and 'tis impossible to conceive the numberless Inconveniencies that will ensue, if Borrowing be cramped. Therefore to think of totally abolishing Usury, is a Notion only fit for *Utopia* : for all States tolerate the Thing, under one rate of Interest or other.

*Its Regulation,
by introduc-
ing two
sorts.*

4. It appears upon thus balancing the Conveniencies and Inconveniencies of Usury, that there are two things to be reconciled ; the one, that the Teeth of Usury be ground, that they bite not too much : the other, that a Way be opened for inviting money'd Men to lend the Merchant, for the continuing and quickening of Trade. And this cannot be effected without introducing two sorts of Usury ; a less and a greater : For if you reduce Usury to one low Rate, this will indeed ease the common Borrower ; but the Merchant will be to seek for Money. And the Trade of the Merchant being the most gainful, might bear a higher Interest than other Contracts.

The first.

5. To answer both Intentions, there may be two Rates of Usury ; the one free for all ; the other under licence, and restrained to certain Persons, and certain Places of great Commerce. First, therefore, let Usury in general be reduced to *Five per Cent*. Let this Rate be proclaimed current ; and let the State renounce all Penalty for the same. This will preserve Borrowing from any general Stop or Difficulty ; ease numerous Borrowers ; and in good measure raise the Price of Land ; because Land in *England*, at sixteen Years Purchase, will yield above *Six per Cent*. whereas the above-mentioned Rate of Interest yields but Five. Lastly, This will encourage Industry, and the Discovery of useful Improvements ; because many will rather venture this Way, than take up with *Five per Cent*. especially as having been used to greater Profit.

The second.

6. Secondly, Let there be certain Persons licensed to lend to known Merchants, and no others whatsoever ; and this under the following Cautions : (1.) Let the Interest be somewhat lower than that they formerly paid ; whence all Borrowers, as well Merchants as others, will be eased by this Reformation. (2.) Let the State be paid some small Acknowledgment for each Licence ; and the rest go to the Lender : for if the Diminution be but small to the Lender, he will not be discouraged from lending. Thus, if he before took Ten or Nine in the Hundred, he will sooner descend to Eight than give over his Trade of Usury ; and change Certainty for Hazard. (3.) Let there be no determinate Number of these licensed Lenders, but let them be restrained to certain principal Cities and Towns of flourishing Trade : for then they will have no Opportunity of lending, under the Pretext of *LICENCES*, other Mens Money instead of their own : nor will the licensed Rate of Nine or Eight thus swallow up the general Rate of Five ; since no Man will choose to lend his Money far off, nor trust it in unknown Hands.

*An Objection
to the Propo-
sal answered.*

7. If it be objected that this Scheme would authorize Usury, which before was in some Places only permissive ; I answer, that 'tis better to mitigate Usury by Declaration, than suffer it to rage by Connivance.

ESSAY XVII. Of RICHES.

1. **R**ICHES may be aptly termed the Baggage of Virtue: for Bag- *Riches the*
gage is to an Army, what Riches are to Virtue; necessary, but *Baggage of*
cumbersome; and cannot be left behind, tho they hinder the March; *Virtue.*
and even frequently lose or delay the Victory. Great Riches are of no
use but to expend; the rest is Imagination. *Solomon* says, *Where much is,*
there are many to consume it; and what bath the Owner, but the sight of it
with his Eyes? The Possession of Riches gives no sensible Pleasure to the
Possessor: there is indeed a Care to preserve, a Power to bestow, or a
Reputation and a Pride to possess them; but no solid Use to the mere Pos-
sessor. What feign'd Prices are set upon Gems and Rarities! What emp-
ty Projects are enter'd upon, out of pure Ostentation, to make the World
believe there is some Use of Riches! But it may be said, their Use prin-
cipally appears in this, that they free the Possessor from Danger and Trou-
ble; according to the Saying of *Solomon*, *Riches are as a strong hold in the*
imagination of the rich man: But *Solomon* prudently adds, they are so in
Imagination, not in Fact: for certainly more Men have been ensnared,
than redeemed by their Riches.

2. Endeavour not to raise immense Riches, but such as may be pro- *Cautions a-*
cured justly, used soberly, distributed cheerfully, and lost contentedly: *gainst grow-*
yet have no monkish Contempt of them; but distinguish betwixt procu- *ing rich too*
curing Wealth with an avaritious View, and a View to the doing of Good. *soon.*
Hearken also to *Solomon*, and beware of growing rich too suddenly. The
Poet's feign, that when *Plutus*, which denotes Wealth, is sent from *Jupi-*
ter, he limps and goes slow; but when sent from *Pluto*, he runs, and is
swift of foot: intimating that Riches procured by laudable Means and
just Labour, advance slowly; but coming by *Death*, that is by Will, In-
heritance, &c. fall precipitantly.

3. The Ways to grow rich are various; but most of them unfair: Par- *The Ways of*
simony may be accounted one of the best, tho not entirely innocent; be- *acquiring*
cause it interferes with the Works of Bounty and Charity. Agriculture *Riches.*
seems the most natural Way of obtaining Riches; but 'tis slow: Yet
when Men of Fortune stoop to Farming and Husbandry, they often grow
immensely rich. I knew an *English* Nobleman, who had the largest Re-
turns from Country Affairs, of any Subject in my time. He was rich in
Herds, rich in Flocks, Woods, Coals, Corn, Lead-Mines, Iron-Mines,
and many other matters of Husbandry. So that the Earth was like the
Ocean to him, perpetually importing Commodities.

4. It was well observed by a Person upon himself, that with great Dif- *Easy to raise*
ficulty he procured a small Estate, and with great Ease a large one. For *a great Estate*
when a Man's Stock is so great, that he can wait the Advantage of the *when a small*
Market, and make such Purchases as are too large for most other Pur- *one is acqui-*
ses, *red.*
yet.

yet remain Partaker of the Industry of the poorer sort; he cannot fail of becoming extremely rich.

*The honest
and dishonest
Profits.*

5. The Profits arising from the ordinary Trades and Professions, are doubtless honest, and increased chiefly by two things; Diligence and a Character for fair dealing. But the Gains arising from large Contracts are generally of a more dubious Nature; as for example, when a Man watches to take the Advantage of others Wants and Necessities; bribes Servants to the Prejudice of their Masters; craftily prevents the better Bidders; with the like fraudulent and culpable Practices.

Jobbing.

Partnership.

Usury.

6. Purchasing with a Design to vend again, commonly grinds on both sides; and oppresses as well the first Seller as the second Buyer. Partnerships are very enriching, if the Persons concerned be well chosen. Usury is one of the surest Means of Gain, tho one of the worst; as that whereby a Man eats his Bread in the Sweat of another's Brow; and keeps the Plough going on Sundays. But tho it be certain, yet it has its Flaws: for Scriveners and Brokers, to serve their own Turns, will sometimes strongly recommend unsafe Borrowers.

Inventors.

7. To be the first in an Invention, or a Privilege, sometimes procures an Inundation of Wealth; as happen'd to the first Sugar-Baker in the Canaries. Therefore if a Man, like a skilful Logician, can add Judgment to Invention, he may certainly effect great things; especially if the Times be suitable.

Venturers.

8. He who depends entirely upon certain Gains, will scarce ever become rich: on the other hand, he who puts all to the Risk, will hardly escape Ruin. It is therefore proper to back Ventures with Certainties, that may balance Losses.

Monopolies.

9. Monopolies for Resale, where not prohibited by Law, are a ready Road to Riches; especially if the Monopolizer can foresee what Commodities will come in request; and so provide himself with them beforehand.

Posts of Honour.

*Poaching for
Executor-
ships.*

*Riches neither
to be despised,
nor niggardly
used.*

10. To grow rich in the Service of Princes, or Nobles, is honourable; but if by means of Flattery, and other servile Arts, it may be accounted a base Way. But fishing for Legacies and Executorships, is yet worse; as this requires a Submission to meaner Persons.

11. Give no Credit to those who seem to despise Riches; for they despise them only because they despair of them: and none prove more penurious when they grow rich. Be not penny-wise: Riches have Wings, and sometimes fly away of themselves; sometimes they must be let go to bring in more.

*Riches how to
be disposed of.*

12. Men, at their Death, bequeath their Riches either to publick Use, or else to their Children, Relations, and Friends; in either Case moderate Portions prosper best. A great Estate left to an Heir, is as a Call to all the Birds of Prey about him; if he be not ripe both in Years and Judgment. In like manner, great Gifts and magnificent Foundations for publick Use, are as Sacrifices without Salt; and but the painted Sepulchres of Alms; which will soon putrefy and corrupt inwardly. Let Gifts therefore be

rated,

rated, not according to Largeness, but Use; and reduced to a proper Measure. Neither let Charities be deferr'd till Death: for when justly considered, this is certainly to be liberal, not of our own, but another's.

ESSAY XVIII. *Of NATURE, and natural Dispositions in Men.*

1. **N**ATURE is often eclipsed, sometimes conquered, but seldom extinguished. Force makes her more violent in the Recoil; Doctrine and Precept check the natural Affections; but Custom alone is that which perfectly subdues and alters Nature. *Nature only subdued by Custom.*

2. He who would conquer his Nature, should set himself neither too great, nor too small Tasks: in the former Case he would be discouraged by frequent Failures; and in the other his Progress would be slow, tho he often prevailed. At first let him practise with Helps; as young Swimmers do with Bladders: but after a time, practise with Hindrances; as Dancers do with heavy Shoes. For it always gives Perfection to have the Exercise harder than the ordinary Use. *How the Conquest is to be obtained over Nature.*

3. When Nature is powerful, and therefore the Victory difficult, the Procedure must be gradual: for example, (1.) By stopping Nature for a while; like him, who in his Passion would repeat the Letters of the Alphabet, before he did any thing else. (2.) By moderating Nature, and bringing her a Step lower; as if a Person, to conquer his Love for Wine, should first sink from Bumpers to half Glasses; and by Degrees totally discontinue the Use of it: But if a Man has the Resolution and Strength of Mind to free himself at once; this were the better Way*. Nor should the ancient Rule be rejected, to bend Nature, like a Wand, to the contrary Extreme, in order to bring her strait; supposing the contrary Extreme tends not to Vice. *How when Nature is strong.*

4. But let no Man force a Habit upon himself, by an uninterrupted Endeavour, without some Intermissions. For the Pause renews and enforces the new Onset: and if a Beginner be in continual Exercise, he will practise his Errors as well as his other Acquirements; and thus procure one Habit of both: and there is no Remedy for this, but by seasonable Intermissions. *Intermissions to be used along with Endeavours.*

5. Again, let no Man too far trust his Victory over his own Nature: for Nature will lie long buried, and yet revive upon the Temptation. *Aep's* Damsel, transformed from a Cat, sat very demurely at the Table, till a Mouse ran before her. Therefore let a Man either wholly avoid the Occasion; or offer himself often to it, that it may move him the less. *Victory over Nature not to be trusted.*

6. Every ones natural Disposition is best discovered, (1.) By familiar Acquaintance; for here there is no Affectation. (2.) In Passions; be- *Mens natural Temper how discovered.*

* *Optimus ille animi vindex, ledentia Pectus
Vincula qui rupit, dedoluitque semel.*

cause these throw off all regard to Rules and Precepts: And, (3.) In new and extraordinary Cases; because here Custom forsakes us.

The natural Temper to be suited with the Life.

Studies against the Inclination to be appointed.

Every Man's Nature affords Herbs or Weeds.

7. They are happy whose natural Dispositions suit with their Professions, or Ways of Life; otherwise they may truly say, with the Psalmist, *Multum incola fuit anima mea*; as conversing in things they do not affect.

8. In Studies, let a Man have set Hours for those Subjects, which are contrary to his natural Inclination; but for those agreeable to his Nature, he need appoint no fixed times; because his Thoughts will spontaneously fly to them, as other Studies and Business give leave.

9. Every Man's Nature readily sprouts into Herbs or Weeds: let him therefore seasonably and diligently water the one, and pluck up the other.

ESSAY XIX. Of DEFORMITY.

Deformed Persons how revenged of Nature.

Deformity not to be considered as a Sign, but a Cause.

Why deformed Persons are bold.

Industrious.

The Advantages of Deformity.

Why Eunuchs and deformed Persons are employed by Princes.

Whence deformed Persons sometimes excel.

1. **D**Eformed Persons are generally revenged of Nature: for as Nature has been unfavourable to them; so are they unfavourable to Nature; being most of them without *natural Affection*.

2. Certainly there is a Consent between the Body and the Mind; and where Nature errs in the one, she ventures in the other. But since Man has a Choice as to the Frame of his Mind, and lies under a Necessity as to the Structure of his Body; the Stars of natural Inclination are sometimes obscured by the Sun of Virtue and Discipline. Whence it were proper to consider Deformity, not as a Sign, which is sometimes fallacious; but as a Cause which seldom fails of the Effect.

3. Whoever has any thing in his Person to occasion Contempt, has a perpetual Spur within him, to vindicate himself from it: whence deformed Persons are extreme bold; at first in their own Defence, as being exposed to Scorn: but in time this turns to Habit.

4. Deformity also whets Industry; especially that of watching and observing the Defects and Weakness of others; to furnish themselves with a Reply.

5. Again, Deformity allays Suspicion and Jealousy in Superiors; who consider the Deformed as Persons they may at pleasure despise. It likewise lays their Rivals and Competitors asleep; who never suspect such Persons should be promoted, till they see them in possession. So that, to consider the Matter closely, Deformity in a great Genius is a means of rising.

6. Kings anciently, and to this Day in certain Empires, put great Confidence in Eunuchs; because they who are envious towards all, will be more faithful and devoted to one: Yet they trust them rather as good Spies and Whisperers, than as good Magistrates and publick Ministers. And the Case is much the same in deformed Persons.

7. The Rule above laid down holds good; and the Deformed, if Men of Spirit, will do their utmost to free themselves from Scorn and Contempt:

tempt : and this can only be effected by Virtue or Malice. Whence it is no wonder they should sometimes prove extraordinary Persons ; such as were *Agésilas*, *Zanger* the Son of *Solyman*, *Æsop*, *Gasca* President of *Peru* ; to whom might be added *Socrates*, and many more.

ESSAY XX. Of BEAUTY.

1. **V**irtue, like a rich Gem, is best when plain set ; and certainly ^{Great Virtue seldom joined with great Beauty.} appears to advantage in a Body that is comely, tho without delicate Features ; or that has rather Dignity of Presence, than Beauty of Aspect. 'Tis rare that very beautiful Persons are highly virtuous ; as if Nature endeavoured to commit no gross Errors, rather than to produce any thing perfect. Whence the Beautiful, tho agreeable in Company, are but low in Sentiments ; and study Gentility rather than Virtue. But this does not always hold ; for *Augustus Cesar*, *Titus Vespasian*, *Philip le Belle of France*, *Edward the Fourth of England*, *Alcibiades of Athens*, and *Ismael the Sophy of Persia*, were very great Men, and yet extremely beautiful.

2. In Beauty, that of Make is greater than that of Complexion ; and ^{The Essentials of Beauty.} a decent and graceful Play of the Face, and Motion of the Body, greater than that of Make. That is the best Part of Beauty which a Picture cannot express ; nor even the Life itself at the first Sight. There is no exquisite Beauty without some Irregularity in the Proportion. It is hard to say, whether *Albert Durer* or *Apelles* was the greater Trifler ; the first for attempting to draw a Man by Geometrical Proportions ; the other for taking the best Features from several Faces, in order to form one that should be excellent. Such Pictures, I conceive, could please none but the Painter. A Painter, I allow, may draw a more beautiful Face than ever Life afforded ; but then he must do it by a kind of Felicity, or Chance, (as Musicians play their Voluntaries) and not by Rule. There are Faces which, if examined Feature by Feature, scarce afford a good one ; yet prove agreeable all together.

3. If Beauty principally consist in decent Motion, no wonder that elder ^{Why Persons of middle Age are sometimes more beautiful.} Persons should sometimes appear more amiable than the younger : for Youth can never be graceful in all Respects, otherwise than by Courtesy ; and allowing the want of Years to balance the want of Decorum.

4. Beauty is like Summer Fruit, easily corrupted, and not lasting. It ^{The Advantages and Disadvantages of Beauty.} often renders Youth dissolute, and Age penitent ; but if well placed, it makes Virtues shine, and Vices blush.

* *Pulchrum autumnus pulcher.*

ESSAY XXI. *Of the RULES of HEALTH.*

1. **T**HERE is a Prudence in the Management of Health, beyond the Rules of Physick. Every Man's own Observation of what he finds good, and what hurtful to the Body, is the best Means to preserve Health.

2. It is a safer Conclusion to say, this I have found prejudicial, therefore I will leave it off; than to say, this has not hurt me, therefore I may use it. For the Vigour of Youth covers many Excesses, which Age must feel the Effects of.

3. Discern the Approach of Years; and think not to continue in the same Course always: for there is no fighting against Age.

4. Beware of a sudden Change in any capital part of Regimen; and if Necessity require it, fit the other Parts to the Change. For it is a Secret both in Nature and Policy, that many things may be safer changed than a single great one.

5. Let the Customs of Diet, Sleep, Exercise, Cloathing, Habitation, and the like, be examined; and if any thing is judged hurtful, try to discontinue it by degrees: but return to it again if any Inconvenience ensue upon the Change; for it is hard to distinguish what is good, and wholesome in general, from that which suits a particular Constitution.

6. To be unbent and chearful at Hours of Meat, Sleep and Exercise, is one of the best Precepts for prolonging Life.

7. As for Passions of the Mind and Studies; avoid Envy, anxious Fears, stifled Anger, subtle and knotty Enquiries, Joys and Exhilarations in Excess, and deep Sadness uncommunicated. On the other hand, entertain Hope; Mirth rather than Joy; Change of Pleasures rather than Satiety; Admiration, and therefore Novelties; Studies that fill the Mind with gay and illustrious Objects; *viz.* Poetry, History, the Excursions of Nature, &c.

8. Wholly to abstain from Physick in Health, will make it too unsuitable to the Body in Sicknes; and if render'd familiar in Health, it will work no extraordinary Effect in Sicknes.

9. Rather use appropriated Diets at certain Seasons, than frequent Physick; except it be grown into a Custom: for such Diets alter the Body more, and disturb it less.

10. Despise no new and unusual Accident in the Body; but take Advice upon it.

11. In Sicknes, let Health be the principal Care; and in Health, Action and Exercise; without being over delicate and tender: for those who render their Bodies hardy in Health, may in most Diseases that are not acute, be cured by an exact Diet and Regimen, without much Physick,

12. *Celsus* could never have given that excellent Rule of his, as a Physician, had he not also been a wise Man. He advises it as a Secret for preserving Health and lengthening Life, to vary, and sometimes interchange Contraries; always inclining to the more benign Extreme: Thus for example, to use a spare and a full Diet, but oftener the latter; Watching and Sleeping, but rather Sleeping; Sitting and Exercise, but rather Exercise; and the like. For thus Nature may be at once recruited and strengthen'd.

13. Some Physicians are so indulgent to the Humour of their Patients, as not to pursue the true Cure of the Disease; whilst others proceed so regularly, strictly, and according to Art, in the Cure of the Disease, as not sufficiently to regard the State and Condition of the Patient. Choose a Physician therefore of a middle Temper; or if this cannot be found in one, join two Physicians together, or one of either sort; calling in as well the best acquainted with your Constitution, as the best experienced in his Art.

ESSAY XXII. Of TRAVELLING.

1. Travelling is a part of Education in young Men; and in the elder Young Men to travel under Tutors. a part of Experience. He who goes into a foreign Country before he has made some Progress in the Language, goes to School; not to travel. I approve that young Men should travel under the Direction of some Tutor, or experienced Servant, who understands the Language, and has been in the Country before; so as to instruct his Pupil what deserves to be there seen and known; what Friendships and Familiarities are to be contracted; and lastly, what Studies or Exercises flourish in the Place: Otherwise young Men will travel hood-wink'd, and see little.

2. 'Tis strange, that in Voyages, where nothing appears but Sky and Sea, Men should keep Diaries; yet generally omit them in Travels, Diaries to be kept of Travels. where so much is to be observed: as if accidental things were fitter to be registered than Matters of fixed and certain Observation. Let Diaries therefore be here brought into Use.

3. The things to be seen and observed in Travelling, are the Courts of Princes, especially when they give Audience to foreign Ambassadors; the Courts of Justice, whilst they sit, and hear Causes; Ecclesiastical Consistories, Churches, and Monasteries, with their Monuments; the Walls and Fortifications of Cities and Towns; Havens and Harbours; Antiquities and Ruins; Libraries, Colleges, Disputations and Lectures; Shipping; Palaces, and Gardens of State and Pleasure; Armories, Arsenals, Magazines, publick Vaults, and Granaries; Exchanges, and the Places of publick Concourse; Store-houses; Exercises of Horsemanship; Fencing; the Exercises of the Soldiery, and the like. To these we add the Plays whereto the better sort of Persons resort; Repositories of Jewels and Robes; Cabinets, Curiosities, Rarities; and, to conclude whatsoever is celebrated

celebrated or remarkable in the Place. And after all the Things of this kind, the Tutors and Servants above-mentioned ought to make diligent Enquiry. As for Triumphs, Masks, Feasts, Weddings, Funerals, capital Executions, and the like, Men need not be put in mind of them; tho these are not to be neglected.

How to travel to advantage.

4. If young Men would reduce the Fruits of their Travels into a small Compass, and collect much in a short time; let them, (1.) acquire some knowledge of the Language before they set out. (2.) Choose a Servant or Tutor, that knows the Country well. (3.) Procure some Map, or Book, that describes the Country; which will serve as a Key to Enquiry. (4.) Keep a Diary. (5.) Not stay long in any one City or Town, tho more or less as the Place deserves, but by no means long. (6.) Change their Lodgings frequently in the same City or Town, from one part to another; for this is attractive of large Acquaintance. (7.) Avoid associating too much with their own Countrymen; and eat at those Ordinaries where the best Company of the Natives meets. (8.) Let them upon Removes procure Letters of Recommendation to some Person of Eminence, residing in the Place they remove to; for procuring his Favour and Assistance in any Matters desired to be seen or known. And thus may Travelling be abridged to Advantage.

The Acquaintance to be made.

5. As for the Acquaintance and Friendships to be contracted in Travelling; the most useful kind is that of the Secretaries, and nearest Servants of Ambassadors: for thus by Travelling in one Country, the Knowledge and Experience of many may be gained. A Traveller also should visit the eminent Persons in all kinds, whose Names are famous abroad; in order to observe how far the Life agrees with Report.

Quarrels to be avoided.

6. Quarrels, and private Animosities, must be discreetly and carefully avoided. These commonly arise about Mistresses, Healths, Precedency, and Words of Reproach. And let a Man beware of keeping Company with the Passionate and the Quarrellsome; who will otherwise engage him in their own Quarrels.

The Conduct to be observed after returning.

7. When our Traveller returns home, let him not wholly leave foreign Countries behind him; but preserve and cultivate, by Letters, the Friendship of the more worthy of those with whom he contracted a Familiarity abroad. And let his having travelled rather appear in his Discourse, than in his Clothes or Gesture. In his Discourse, likewise, let him rather endeavour at solid Answers, than give into the Vein of Story-telling. Let him also shew that he has not changed the Manners of his own Nation for those of another; but only stuck a few foreign Flowers among the Customs of his native Country.

ESSAY XXIII. Of BUILDINGS.

1. Houses are built to live in, not to look at: therefore let Convenience here take place of Beauty; unless when both may be had. We leave the pompous Houses, for Beauty only, to the enchanted Palaces of the Poets; who raise them with little Expence. Convenience the principal End of Building.

2. He who builds an elegant House with a bad Situation, commits himself to Prison. I call that a bad Situation, not only where the Air is unwholsome; but likewise where it is unequal: as in the Case of Houses built upon an Eminence, surrounded, like a Theatre, with higher Hills; where the Heat of the Sun is kept in, and the Wind collected as into Channels, running with different Streams; so as to cause as sudden and great Diversities of Heat and Cold, as would be felt in several different Places. A proper Situation to be chose.

3. Nor is it any unfavourable Circumstance of the Air alone, that makes a bad Situation; but bad Markets, bad Roads, and bad Neighbours; the Want of Water, Fewel, Shade and Shelter; the Want of Fertility or Mixture of Soil of several kinds; the Want of Prospekt; the Want of level Grounds and Places adjacent for Hunting, Hawking, and Horse-Racing; the lying too near the Sea, or too remote from it; the Want of navigable Rivers, or the Inconvenience arising from their overflowing; the being at a distance from large Cities, which may hinder Business; or else too near them, which consumes Provisions, and makes all Commodities dear; the Necessity of having too much Land lying together; or else too little, so as to be cramped and confined; all which Inconveniencies I enumerate, not as if any House could be free from them all; but that as many of them as possible may be avoided: and again, that if any Gentleman builds himself several Seats, he may manage so as to have those Conveniencies in one, which are wanting in another. It was a proper Answer of *Lucullus* to *Pompey*, who upon viewing the magnificent and luminous Rooms and Galleries in one of *Lucullus's* Palaces, cry'd out, *An excellent Seat for the Summer; but how do you endure the Winter?* *Lucullus* replied, *Do you think I have not the Prudence of Birds, who some of them change their Habitation towards Winter?* The Things included under bad Situation.

4. We now pass from the Situation to the House itself; endeavouring in this Essay to imitate *Cicero*, who wrote certain Books upon *Oratory*; and one which he called the *Orator*: in the former whereof he delivered the Precepts of the Art; and in the latter its Perfection. We therefore next proceed to describe a *Palais Royal*; and exhibit a kind of Model thereof: for it is strange to see in *Europe* such vast Piles of Building, as the *Vatican*, *Escorial*, and some others; yet scarce a very magnificent Room in them. The Model of a Royal Palace proposed.

5. And this we lay down as a Foundation, that there can be no perfect Palace without two Parts; one for the Banquet, as is mentioned in the Book of *Hester*; and another for the Household: the first for Feasts, the second for Shews, A perfect Palace to have two Parts joined by a Tower.

Shews, and Magnificence ; the second for Habitation. I mean that these two Parts be built not as Sides, but as Fronts ; and to be uniform without, tho differently partitioned within : And again, to be joined by a lofty and magnificent Tower, in the middle of the Front.

A Banquet Part,

6. On the Banquet Part, let there be only one Room above Stairs, fifty Foot high at the least ; and under it another, of the same length and breadth, for conveniently receiving the Machines, Decorations, Dresses, and the Actors themselves, whilst they get ready at the Times of publick Entertainments.

and a Household Part.

7. Let the Household Part be divided chiefly into a large and stately Hall, and a Chapel ; not running however the whole length of this Part ; but to have at the farther end two Parlours, one for Winter, and one for Summer : and under all these, except the Chapel, let large Cellars be sunk to serve for Privy-Kitchens, Larders, Pantries, and the like.

The Structure of the Tower and Stairs.

8. Let the Tower be raised two Stories (each of them fifteen Foot high) above the two Wings of the Front ; and be flat-leaded, and railed at the top, with Statues interposed. Let the Tower also be divided into Lodging-Rooms, at Discretion. The Stairs are to be wide, winding, divided into fixes, and on both sides adorned with Images of gilt Wood, or at least of a brass Colour ; and to have a spacious Landing-Place at the top. But in this Case let none of the adjacent lower Rooms be made a Dining-place for Servants ; otherwise the Steam of the Meat will ascend as it were through a Funnel : and so much for the Front. Only I understand the height of the first Stair-Case to be twenty Foot ; which is the height of the first Story.

The Court-Yard how to be built.

9. Beyond this Front let there be a spacious Court-Yard, with its three sides much lower built than the Front. And in the four Corners of this Court, let there be raised Stair-Cases, cast into Turrets on the outside, and projecting from the Row. But these Turrets are not to rise so high as the Front ; yet proportionably higher than the lower Edifices. And let not the whole Court be paved with broad square Stone ; because this strikes a great Heat in Summer, and Cold in Winter : but let some Walks be made of this Stone, running along the sides of the Building, and making a Cross in the middle, with Quarters for Grass, which is to be kept short cut.

The ornamental Parts of the Banquet and Household Apartments.

10. Let the whole Banquet-side of the Court be filled with magnificent Galleries ; in each whereof let there be three or five beautiful Cupola's, placed at equal Distances through the whole Lengths : and let the Windows be of Glass variously coloured and wrought. On the Household-side, and that opposite to the Front, should be Presence-Chambers, and others for ordinary Use and Entertainments ; as also Bed-Chambers ; and let all three sides be built in form of a double House, without thorow Lights, or with Windows only one Way ; so that there may be Rooms free from the Sun, both Forenoon and Afternoon : and contrive it so as to have Rooms shady for Summer, and warm for Winter. We sometimes see elegant Houses so full of Windows, that one can scarce find a Place to be

out of the Sun or Cold. I approve of Bow-Windows, as convenient things. In Cities indeed plain Windows are best, for the sake of Uniformity, next the Street; otherwise they are convenient Retiring-Places for Conference; and at the same time keep off both the Wind and Sun: for what would otherwise strike almost thro the Room, can thus scarce reach beyond the Window. But let these Bow-Windows be few, or not exceeding four; viz. two on each hand of the Area.

11. Beyond this let there be an inner Court; of the same Circuit and Height; surrounded on the outside with a Garden; and with beautiful arched Terrass-Walks within, as high as the first Story. Let the outward part of the lower Story, towards the Garden, have the two sides turned to a Grotta, or place of Shade; and either open, or fasted only towards the Garden. And let this Grotta not be sunk, but lie level with the Ground; and have a proper Flooring to prevent Dampness. There should also be a curious Fountain, or some magnificent Work of Statuary, in the midst of this Court; with a Pavement like to that of the other. *Garden and Grotta.*

12. Let the Building on both sides of this Court be destined for Privy-Chambers; and the end for Privy-Galleries: But Care must be had that some of the Rooms, Closets, and Galleries, be appointed for *Infirmaries*; in case the Prince and any of the Royal Family should be sick. And each Infirmary should have its Anti-Chamber, Bed-Chamber, and Withdrawing-Room. And let this be upon the second Story.

13. Let the end of the lower Story towards the Garden, be converted to a magnificent open Gallery, supported by Pillars. And again, upon the third Story, let there be on all the three sides, the like kind of elegant open Galleries, raised on Pillars; for taking the Prospect and Freshness of the Garden^d. At both Corners of the farther side, on the second Story, let there be two Closets, or Cabinets, curiously inlaid, richly hung, fasted with crystal Glafs, and rising in an elegant Cupola in the middle. Let these Cabinets be filled with all kinds of the noblest Curiosities. The upper Galleries also I would, if possible, have adorned with small Fountains, playing from the Wall in different Places; and discharging the Water by secret Conveyances. *Open Galleries. Cabinets. Fountains.*

14. And thus much for the Model of the Palace; not here intending to speak of Baths, Fish-Ponds, and the like. We shall only farther observe, that there should be three Courts leading up to the Front of the Palace; viz. a plain green Court surrounded with a Wall, and Trees growing regularly along the sides thereof; a second Court of the same Dimension, but with little Turrets, or the like Embellishments upon the Wall; and a third, to make a Square with the Front; but not to be built round, nor enclosed with a naked Wall, but surrounded with Terrasses, raised not upon Arches, but upon Pillars; and either leaded or flagged with broad Stone a-top; and adorned with little brass-coloured Images. *Three Courts. Terrasses.*

^d For the Subject of *Royal Gardens*, see the following Essay.

Offices.

15. As for Offices, let them stand at some distance from the Palace; and have low covered Galleries leading from them to it.

ESSAY XXIV. Of GARDENS.

Gardening
affords a pure
kind of Plea-
sure.

1. GOD first planted a Garden: and indeed of all human Pleasures, that of a Garden is the purest; and highly refreshes and recreates the Spirits: insomuch that without it, Buildings and Palaces are but gross Handy-works; that have nothing of Nature in them. And we constantly find, that as Nations advance in Civility and Magnificence; they sooner arrive at Elegance in Building, than in Gardening: as if the latter were the more perfect thing.

Royal Gar-
dens to pro-
duce monthly.
For Decem-
ber and Ja-
nuary.

2. I lay it down as fundamental, that Gardens Royal should have a Garden suited to every Month of the Year; so as to produce all those things a-part, which flourish and come in Season monthly. For *December*, *January*, and the latter part of *November*, choose such things as are green all Winter; viz. Holly; Ivy; Bays; Juniper; Cypress; Yews; Box; Pines; Firs; Rosemary; Lavender; Periwinkle, both the white, the purple, and the blue; Germander; the several kinds of Iris; Orange-trees; Lemmon-trees; and Myrtles; if preserved in the Green-house; as also Sweet Marjoram set to the warm Sun.

February.

3. For the latter end of *January* and *February*, there are the *Mezereon* Tree, which then blossoms; the *Crocus Vernus*, both the yellow and the grey; Primroses; Anemonies; the early Tulip; the Oriental Hyacinth; the *Chamairis*; and the *Fritellaria*.

March.

4. For *March*, there are Violets of all kinds, especially the single blue, which are the earliest; the yellow Daffadil; the Daisy; the Almond-tree; the Cornel-tree in Blossom; and the Sweet-briar.

April.

5. In *April* follow the double white Violet; the Wall-flower; the Stock-gilliflower; the Cowslip; the Flower-de-luce; Lillies of all kinds; Rosemary-flowers; the Tulip; the double Piony; the pale Daffadil; the *French* Honey-suckle; the Cherry-tree, the Pear, and all the Plumb-trees in Blossom; the Bear's-breech in Leaf; and the Lelach-tree.

May and
June.

6. In *May* and *June* come Pinks of all sorts, especially the Blush-Pink; Roses of all kinds, except the Musk-Rose, which comes later; Honey-suckles; Strawberries; Bugloss; Columbine; the *French* Marygold; *Flos Africanus*, single and double; the Cherry-tree in Fruit; Currants; Figs in Fruit; Raspberries in Fruit; the Vine in Flower; Lavender in Flower; the Garden Satyrion, with the white Flower; *Herba Muscaria*; the Lilly of the Valley; and the Apple-tree in Blossom.

July.

7. In *July* come Gilliflowers of all sorts; Musk-Roses; the Lime-tree in Blossom; early Pears, Plumbs and Apples, in Fruit.

August.

8. In *August* come Plumbs of all sorts in Fruit; Pears; Apricots; Barberries; Filberds; Muskmelons; and Monks-hoods of all Colours.

9. In *September* come Grapes; Apples; Poppies of all Colours; *September*. Peaches; *Melo-cotones*; Nectarines; Cornelis; Wardens; Quinces.

10. In *October*, and the beginning of *November*, come Services; Med- *October and November*. lars; Sloes; Roses cut or removed to come late; Holly-oaks, &c. The Plants here mentioned are for the Climate of *London*: but our meaning is to shew, how a kind of perpetual Spring may be procured in other Places also, according to their Nature.

11. And because the Odour of Flowers is much sweeter in the Air *What Plants yield little odour as they grow.* (where it undulates, like the warbling of Musick) than when in the Hand; nothing contributes more to procure the Pleasure of their free Scent, than to know what Plants best perfume the Air while growing. Roses, both the Damask and the Red, are, whilst on the Bush, retentive of their Odours; or perfume the Air so little, that you may walk by a whole Hedge-Row of them, without perceiving their Sweetness; even on a dewy Morning. Bays, Rosemary, and Sweet-Marjoram, likewise yield little Scent as they grow.

12. What most perfumes the Air whilst growing, is the Violet; especially the white double Violet, which flowers twice a Year; viz. about *Those that perfume the Air most when growing.* the middle of *April*, and towards the end of *August*. Next to this is the Musk-Rose; then come the Strawberry-leaves, which as they wither, yield an excellent cordial Odour: then the Vine Blossoms, which appear like the Dust upon the Stalk of a Bent. The next in order is Sweet-briar; then Wall-flowers, which are very delightful if set under a Parlour-window: then Pinks and Gilliflowers; then the Flowers of the Lime-tree; then the Honey-suckle at some small distance: and lastly, the Flowers of Lavender. We do not mention Bean-blossoms, because they are Field-flowers.

13. The Plants which agreeably perfume the Air, not when growing, *Those that do it when trod on.* but by being trampled upon and crushed, are three; viz. Burnet, Wild-thyme, and Water-mint. Therefore whole Walks should be planted with these; to have the Pleasure of their Odour in walking upon them.

14. Royal Gardens* should not contain less than thirty Acres of Ground; *The Platform of a Garden Royal.* and may be properly divided into three parts: a Green at the Entrance; a Heath or Wilderness at going out; and the main Garden in the middle; besides Walks on both sides. And I should allot four Acres to the Green, six to the Heath, eight to the Side-walks, and twelve to the main Garden.

15. The Green has two Advantages; the one, as nothing is more pleasant to the Eye than verdant Grass, kept short cut; the other, as it will afford a Walk in the middle up to a stately Hedge, which is to enclose the main Garden. But because this Walk will be long; and because the Shade ought not to be purchased by walking so far in the Summer's Sun; two Cover'd Walks, one on each side the Green, should be made, twelve Foot high, of Wood-Work; so as to afford a shady Passage into the Garden. *The Green, with its two Side-walks.*

16. Let the Figure of the Garden be square, and encompassed round *The Form of the Garden.* with a beautiful arched Hedge; the Arches being ten Foot high, six Foot

* The Author here lays down the Platform of a Royal Garden, as in the foregoing Essay he gave the Model of a Royal Palace.

wide ; and supported by Pillars of Wood-Work ; standing at six Foot distance from each other. Over the Arches, let there be a continued Hedge, four Foot high, framed also of Wood: And over this, at the top of every Arch, let there be a little Turret ; with a Cavity sufficient to receive a Cage of Birds. And over every Space between the Arches, place some other gilt Figure, containing Plates of colour'd Glafs for the Sun to play upon.

*The great
Hedge, how
to be raised.*

17. This Hedge I propose should be raised upon a Bank, gently sloped to the height of six Foot ; and set all over with Flowers. I also mean, that this Square of the Garden should not take up the whole breadth of the Ground, but leave room enough on both sides for the making of various Walks ; to which the two cover'd Alleys of the Green may lead. But there must be none of those Walks with Hedges, either at the end or entrance of the Garden: Not at the Entrance, because this would hinder the Prospect of the beautiful Hedge from the Green ; nor at the End, because that would hinder the Prospect thro the Arches, from the Hedge, upon the Heath.

*The Disposal
of the Gar-
den.*

18. I leave the Disposition of the Ground, contain'd within the great Hedge, to be varied at Pleasure ; advising only, that whatever form it is cast into, it be not too full of Labour and Curiosity. Images cut in Juniper, or other Trees, I cannot approve of ; as being only fit for Children. But low Hedges, cut round like Edging, with some little Pyramids interspersed, are agreeable : and in some few Places, tall Pyramids and Columns of Wood, cover'd with Hedge-work, may be allowed.

*The Walks
and Mount.*

19. I would also have the Walks spacious and large. Narrow Alleys indeed may be allowed upon the side Grounds ; but none in the main Garden. I would also advise a large Mount in the middle of the Garden ; with three Ascents, and three Walks, broad enough to receive four Persons abreast. These Walks I would have circular, without any Bulwarks or Embossments. Let the whole height of the Mount be thirty Foot ; and have an elegant Banqueting-house a-top, with neat Chimneys ; and not too much Glafs.

Fountains.

20. Fountains are very ornamental and refreshing ; but Ponds and Fish-Pools should be rejected ; as rendring the Garden unwholesome, and filling it with Flies, Frogs, and the like. I would have the Fountains of two sorts ; the one to play as *Jet d'Eaux* ; the other to receive Water in a beautiful Basin, thirty or forty Foot square ; without Fish, Foulness, or Mud. The common Marble Statues, or gilt Images, are a proper Ornament for the former ; but the principal thing in this case is, to procure a constant Course to the Water, that it may neither stagnate in the Shells nor Cistern ; so as to grow green, red, or otherwise discoloured ; or contract any Moss or Putrefaction. Let it also be cleansed every Day by the Hand, that it may remain limpid. It would be likewise an Ornament to have some Steps leading up to the Fountain ; and a proper Pavement about it. The other kind of Fountain, which we may call a Bath, will admit of a great Variety of Ornaments ; thus the bottom and sides may be graced with Images, and set off with variously coloured Glafs,

Glass, or other things of Lustre ; and railed in, or surrounded with low Statues. But here again, the capital thing is, that the Water be in perpetual Motion ; falling from a Head higher than the Bath ; into which it should be deliver'd by beautiful Spouts, and then immediately discharged under Ground by an equal Range of Pipes ; so as to prevent Stagnation. As for artificial Rocks, and the curious Invention of arching Water without spilling, or throwing it into various Forms, as of Feathers, Drinking-glasses, Canopies, &c. these are agreeable Sights ; but contribute nothing to Health or Neatness.

21. We now come to the Heath ; which is the third part of our general Plan : And this I would have nearly resemble a natural Defart. Let there be no Trees planted in it ; only in some Places certain Rows of them ; to allow of shaded Walks, or shaded Galleries on their tops, cover'd after the manner of Arbors. Let there be also some Thickets, up and down, of Sweet-briar, Honey-suckle, and Wild-vine. And let neither these Thickets, nor the Galleries on the Trees, be placed in any regular Order ; but at Discretion. Let some part of the ground be thick-set with Violets, Straw-berries, and Primroses : for these are sweet, and prosper in the Shade. Let there also be little Hillocks raised like the natural Mole-hills in wild Heaths ; and set, some with wild Thyme, some with Pinks, some with Germander, which has a beautiful Flower, some with Periwinkle, Violets, Straw-berries, Cowslips, Daisies, red Roses, Lilly of the Valley, red Sweet-Williams, Bears-foot, and the like low Flowers, which are both sweet and beautiful. Let some of these Hillocks have little Standards, or BUSHES set on their tops ; such as the Rose, the Juniper, Holly, Barberry, red Currant, Gooseberry, Rosemary, Bays, Sweet-briar, &c. all of them to be kept cutting, that they may not grow irregularly. And, except in these Particulars, let the main part of the Heath be open, without Trees or Shrubs.

22. Let the Side-grounds be divided into a variety of private Walks ; that some of them may be shaded at all times of the Day. Some also should be defended from Wind ; so that Persons may walk in them as in a Gallery. And for this purpose, such Walks must be closed at both ends. And let these close Walks be not green, but gravell'd ; to keep them constantly dry. In many of these Walks may be set Fruit-Trees of all sorts ; as well on the outside, as the inside Ranges. And let it be observed in general, to make the Borders, wherein the Fruit-trees are planted, wide, low, moderately inclining ; and to set them sparingly with Flowers, for fear of defrauding the Trees. At the ends of both the Side-grounds, I would have two Mounts raised some considerable height ; so as to leave the Wall of the Enclosure breast-high, for affording a Prospect into the Fields.

23. To return to the main Garden ; there may here also be some spacious Walks, set on both sides with Fruit-trees ; as also certain elegant Groups of Fruit-trees, and beautiful Arbors, with Seats ranged in regular Order ; but these should, by no means, be set thick : for the main Garden should

should be left open, and every way exposed to the Air. There are side-Walks for Shade, in the Heat of the Day or Year: But the main Garden is designed for the more temperate Parts of the Year, as the Spring and Autumn; and also for the Summer Mornings and Evenings, or the more cloudy Days.

Aviaries.

24. I cannot approve of *Aviaries*, unless they are made so large, as to be turf'd, and set with live Shrubs and Bushes; both to give the Birds more freedom of flight, and perching; and to avoid the Appearance of Foulness on the Floor.

Conclusion.

25. As to the making of Walks upon Cliffs, and various agreeable Accents; these are the Gifts of Nature, and not always to be procured. But we have suited our Description to every Place; and thus given a Platform of a *Garden Royal*; partly by Precept, and partly in the way of general Model; tho only the Outlines of it are touched. We have spared for no Cost in the Design: But the Expence is nothing for Princes; who generally advise with Gardiners; and with no less Charge combine many things together with little Judgment; sometimes adding Statues and the like, for State and Magnificence: tho these Matters no way conduce to the genuine Pleasure and Delight of a Garden.

ESSAY XXV. Of latent PROPHECIES.

Secret Prophecies.

1. I Propose not here to speak of divine Prophecies, nor of heathen Oracles, nor of natural Predictions; but only of Prophecies that have been of certain Memory, and from secret Causes.

That of the Pythonissa to Saul.

2. Saith the *Pythonissa* to *Saul*, *To morrow thou and thy son shall be with me.* *Virgil* has these Verses from *Homer*:

*At domus Aeneae cunctis dominabitur oris,
Et nati natorum, & qui nascentur ab illis.*

Seneca of America.

A Prophecy, as it seems, of the *Roman Empire*.

3. *Seneca* the Tragedian hath these Lines:

————— *Venient annis
Secula feris, quibus Oceanus
Vincula rerum laxet, & ingens
Pateat Tellus, Tiphysque novos
Detegat Orbes; nec sit Terris
Ultima Thule.*

Polycrates's Daughter.

A Prophecy of the Discovery of *America*.

4. The Daughter of *Polycrates* dreamed, that *Jupiter* bathed her Father, and that *Apollo* anointed him; and it happen'd, that he was crucified in an open Place, where the Sun made his Body run with Sweat, and the Rain washed it.

5. *Philip*

5. *Philip of Macedon* dreamed that he seal'd up his Wife's Belly ; whence he supposed his Wife should be barren : but *Aristander*, the Soothsayer, told him his Wife was with Child ; because Men do not seal up empty Vessels. *Philip of Macedon.*
6. A Phantasm that appear'd to *M. Brutus* in his Tent, said to him, *Thou shalt see me again at Philippi.* *Tiberius* said to *Galba* ; *And thou Galba shalt also taste of Empire.* *The Phantom to Brutus.*
7. In *Vespasian's* time there went a Prophecy in the East, that some coming out of *Judæa*, should reign over the World ; which tho, perhaps, meant of our Saviour, yet *Tacitus* explain'd it of *Vespasian.* *That of a Ruler coming out of Judæa.*
8. *Domitian* dreamed, the Night before he was slain, that a golden Head was growing out of the Nape of his Neck : and indeed the Succession for many Years had golden times. *That of Domitian a little before his Death.*
9. *Henry the Sixth of England*, said of *Henry the Seventh*, when a Lad, and gave him Water ; *This is the Lad that shall enjoy the Crown for which we strive.* *Henry the Sixth.*
10. When I was in *France*, I heard from *Dr. Penas*, that the Queen-Mother, who was given to curious Arts, caused the King her Husband's Nativity to be calculated under a false Name ; and the Astrologer answer'd, that he should be killed in a Duel : at which the Queen laughed, as thinking her Husband to be above Challenges : but he was slain at Tilt ; the Splinters of the Staff of *Montgomery* going in at his Beaver. *That of an Astrologer of a King of France.*
11. There was a trivial Prophecy when I was a Child, and Queen *Elizabeth* in the Flower of her Years ; *When Hempe is sponne*, England's done. Whereby was generally conceived, that after the Princes Reigns, who had the Letters of the Word *Hempe* for Initials (which were *Henry, Edward, Mary, Philip, and Elizabeth*) England should come to Confusion : Title, which, thanks to God, is verified only in the Change of the Name ; the King's Title now being no more of *England*, but of *Britain.* *A supposed Prediction of the Change of the King of England's Title.*
12. There was also another Prophecy before the Year eighty-eight, which I do not well understand. *Another of the Spanish Invasion.*

*There shall be seen upon a Day,
Between the Baugh and the May,
The black Fleet of Norway :
When that is come and gone,
England build Houses of Lime and Stone,
For after Wars shall you have none.*

It was generally conceived to be meant of the *Spanish* Fleet, that came in eighty-eight : for the King of *Spain's* Sirname, they say, was *Norway.*

13. The Prediction of *Regiomontanus*,

Ologesimus octavus mirabilis Annus ;

was thought likewise to be accomplish'd, in the sending of that Fleet ; being the greatest in Strength, tho not in Number, that ever rode the Sea.

That of Regiomontanus.

14. As

Cleon's
Dream.

14. As for *Cleon's* Dream, of his being devour'd by a long Dragon, and expounded of a Sausage-maker that troubled him; I take it to be a Jest. There are many of the like kind; especially if we include Dreams, and the Predictions of Astrology: but I have set down only these few, of certain Credit, by way of Example.

The Judg-
ment to be
made of these
Prophecies.

15. My Judgment is, that they should all be despised; and serve but for Winter Talk by the Fire-side. Tho, when I say despised, I mean as to Belief: for the spreading, or publishing of them has done much mischief. And I find many severe Laws made to suppress them.

Whence they
have been en-
couraged.

16. What has given them countenance and some credit, consists in three things; (1.) That Men mark when they succeed, and not when they fail. (2.) Probable Conjectures, or obscure Traditions, often turn into Prophecies; while the Nature of Man, which is fond of Divination, thinks it no risk to foretel, what in Reality is but collected: as in the Case of *Seneca's* Verses above-mentioned; for it was in his time matter of Demonstration, that the Earth stretched far beyond the *Atlantick*; which might probably be conceived not all Sea: and adding thereto the Tradition in *Plato's Timæus*, and his *Atlanticus*, this might encourage a Man to turn it into a Prediction. (3.) But the principal thing is, that almost all of them, being infinite in number, have been Impostures; and merely contrived and feigned by idle and crafty Brains, after the Event.

* See more upon this Subject in the *De Augment. Scientiar.* SECT. IV.



SECT.

S E C T. III.

ESSAYS UPON POLITICAL SUBJECTS.

ESSAY I. Of STATE COUNSEL.

I. **T**HE greatest Trust between Man and Man, is that of giving Counsel. In other Trusts we venture only Parts of our Fortune; as Lands, Children, Reputation, &c. but to our Counsellors we commit the whole: who are therefore the more obliged to use the utmost Sincerity and Integrity. The wisest Princes should think it no diminution of their Authority, to advise with select Council. God himself is not without his Counsel; having made it one of his Son's highest Titles to be call'd the *Counsellor*. And *Solomon* pronounces, that *in Counsel is Stability*. Human Affairs must and will have either a first or second Agitation: and if they be not tossed upon the Arguments of Counsel; they will be tossed upon the Waves of Fortune; and be full of Inconstancy, weaving and unweaving, like the reeling of a drunken Man. *Solomon* saw the Necessity and Use of Counsel; and his Son felt the force of it: for the beloved Kingdom of God was first rent and broken by such ill Counsel, as holds out to us two evident Marks, whereby bad Counsel may always be known; *viz.* that it was young for the Persons, and violent for the Matter.

2. The Inconveniencies of calling and taking Counsel, are supposed to be three; (1.) *The divulging of Secrets*; (2.) *Lessening the Authority of Princes*; and (3.) *The danger of sinister Advice*. To prevent these Inconveniencies, the Doctrine of *Italy*, and the Practice of *France*, has, in the Reigns of certain Kings, introduced *Cabinet-Councils*; which is a Remedy worse than the Disease.

3. (1.) As to *Secrecy*; Princes are not bound to communicate all things to all Counsellors; but may judiciously extract and select both Persons and Affairs. Nor is it necessary for a Prince who consults what he should do, to declare what he will do. But let Princes beware lest themselves reveal their own Secrets.

4. As for *Cabinet-Councils*; their Motto may be *Plenus Rimarum*. One futile Person, who glories in knowing and revealing Secrets, will prove more pernicious than many, who know it their Duty to conceal them. 'Tis true, some Affairs require the utmost Secrecy; and should hardly go beyond the Knowledge of one or two; besides the Prince himself. Nor are such Counsels usually found unprosperous; as being not only secret, but generally conducted steadily, in the same Spirit, without Disturbance. But to render them successful, the King must be prudent, and of great personal Abilities; and his Counsellors also, Men of Sagacity, and true

to his Ends: as in the Case of King *Henry the Seventh*, who communicated his more important Secrets to but two Counsellors, *Morton* and *Fox*.

Lessening of
Authority.

5. (2.) As for diminishing of Authority; the Majesty of Kings is rather exalted than diminished, when they sit in the Chair of Council: Nor is there any Instance of a Prince lessened in his Prerogative by his Council; unless where too great a Power was lodged in some one Counsellor; or too strict a Combination entered into by several: which are Inconveniencies easily discovered and remedied.

Sinister Coun-
sel.

6. (3.) The last Inconvenience is, that Men will counsel with an Eye to themselves. But doubtless that Text, *He shall not find Faith upon the Earth*, is to be understood of the Times, and not of particular Persons. There are certainly Men faithful in their Nature; sincere, plain, and direct; without Craft or Disguise. Let Princes, above all things, procure such Men about them. Besides, Counsellors are seldom so united, as not to keep watch upon one another: so that if any one should give factious or selfish Counsel, it presently comes to the Prince's Ears. But the best Remedy is when Princes endeavour to know their Counsellors; and their Counsellors to know them. On the other hand, Counsellors should not pry too much into the Person of their Sovereign. The true Composition of a Counsellor, is to understand his Master's Business better than his Temper; for such a Counsellor will probably advise him justly; and not comply with his Humour in hopes of pleasing. It may likewise prove of great Use for Princes to take the Opinions of their Council both separately and conjointly: for private Opinion is more free; and publick Opinion more solemn: as Men in private follow their own Affections; but in Company are more influenced by those of others. 'Tis therefore proper to take both; viz. from Men of the inferior Rank rather in private, that Freedom may be preserved; and from those of the superior, rather in publick, that they use not too great a Liberty.

Persons to be
considered as
well as
Things.

7. 'Tis in vain for Princes to deliberate of Things, unless they also deliberate carefully of Persons: for Things are but as dead Images; whilst the Life of the Execution chiefly consists in the Choice of the Persons. Nor is it sufficient to consider of Persons, in the general, as in the abstract, or mathematically, what their Kind and Character should be; for the greatest Errors are committed, and the most Judgment shewn, in the Choice of Individuals. It should also be remember'd, that *the best Counsel comes from the Dead*^b: for Books will speak the naked Truth; where living Counsellors perhaps would flatter. 'Tis therefore of use to be conversant in Books; especially such as were written by Persons in employ.

The Regula-
tion of Coun-
cils.

8. The Councils of this Age are, in most Places, little more than familiar Meetings and Conversations, where Matters are lightly talked of, rather than seriously debated; and generally hurry too fast to the Order or Act of Council. It were better in Affairs of Weight, to have the Subject proposed one Day, and debated the next; that the Pillow may be consulted.

^a Principis est Virtus maxima nosse suos.

^b Optimi Consiliarii mortui.

sultedⁱ. This was done in the *Treaty of Union*, between the Commissioners of *England* and *Scotland*; which was a regular and well conducted Assembly. But for private Petitions, I approve of certain fixed Days; as this gives the Suitors notice of the proper Times for applying; and eases the more solemn Meetings, or prevents their being interrupted in their more immediate Business.

9. In appointing *Committees* to prepare Matters for informing the Council; 'tis better to choose indifferent Persons, than to make a kind of Neutrality, by adding some strong Partizans on both sides. *Committees.*

10. I also approve of separate *Standing Commissions*; for Trade, the Treasury, War, Suits, Grievances, particular Provinces, &c. And *Standing Commissions.* where there are several subordinate Councils, and but one Council of State, as in *Spain*, they are nearly such Standing Commissions as we speak of; only with greater Authority. Let the Persons who are to inform Councils, from their particular Professions, as Lawyers, Seamen, Artificers, &c. be first heard before Committees; and then, as occasion serves, before the Council. And let them not come in a tumultuous or rude manner, for that were to clamour at Councils, not inform them.

11. A long and square Table, or Seats to the Walls of the Council-Chambers, may seem things of Form, but are things of Substance; for only a few at the upper end of a long Table, in effect carry the whole Business; but in the other Cases, the Counsellors, who sit lower, may also assist. *The Difference betwixt long and square Council-Tables.*

12. Let a King when he presides in Council, beware of declaring his own Opinion too soon; otherwise his Counsellors will fall in with him; and instead of free Advice, sing him a Song of *Placebo*^k. *The Conduct to be observed by a King in Council.*

ESSAY II. Of the REGULATION of EMPIRE.

1. **T**IS doubtless a miserable State of Mind, to have few things to desire, and many to fear: yet this is almost peculiar to Kings; who standing on the top Round of Glory, can aspire no higher; and therefore grow languid. Whilst on the other hand, they have many Apprehensions of Dangers, and flying Shadows to cloud their Minds. And this one Reason *why the Hearts of Kings are inscrutable*. For Multiplicity of Jealousies, and the want of some predominant Passion to command the rest, renders Mens Hearts hard to be known. And hence again, Princes often create Desires to themselves, and apply to lesser Matters; as the erecting of a Building; the creating of an Order; instituting a College; the advancing a Favourite; or the acquiring a Perfection in some Art, as *Nero* in playing upon the Harp; *Domitian* in drawing the Bow; *Commodus* in fencing; *Caracalla* in driving the Chariot, &c. all which ap- *The State of Kings.*

ⁱ In nocte Consilium.

^k For more upon this Subject, see the *Sapientia Veterum*, Sect. III. particularly the Fable of *Jupiter* and *Metis* explained of Princes and their Council.

pears incredible to those unacquainted with this Axiom; that *the Mind is more exbilerated and gratified by advancing in small Things, than by resting in great ones.* We see also that Kings who have been fortunate in the beginning of their Reigns, finding it impossible to advance and prove successful for ever; usually turn superstitious and melancholly at last: as *Alexander the Great*; *Dioclesian*; and in our own time, *Charles the Fifth*, &c. for he who has been always accustomed to advance, but at length meets with a Stop; here sinks in his own Opinion, and no longer remains the thing he was¹.

The true Temper of Empire.

2. We now proceed to consider the true Temper of *Empire*: which is rarely found, and hard to preserve; for both Temper and Distemper consists of Contraries. But it is one thing to mix Contraries, and another to interchange them. *Apollonius* being asked by *Vespasian*, what was *Nero's* Ruin; answered, with great Sagacity, *that Nero could tune and touch the Harp with Skill; but in Government sometimes strained the Strings too high, and sometimes let them down too low.* And certainly nothing destroys Authority so much, as the unequal and unseasonable Interchange of Power, over-stretched and relaxed, by Starts.

The modern Politicks imperfect.

3. The modern Politicks, however, consist chiefly in discovering present Subterfuges or Evasions, and opposing Remedies to impending Dangers; rather than in any solid, prudent, or settled Scheme to prevent their Approach. This is coming to close Combat with Fortune:—but beware of slighting the first Occasions or Beginnings of Troubles; for no Man can prevent the Spark; or tell from what Quarter it may come. The Difficulties and Obstacles in the Affairs of Princes, are doubtless great and many; but the greatest often lie in their own Passions and Tempers. For as *Tacitus* well observes, 'tis common with Princes to desire Contradictions^m: it being the Solicifm of exorbitant Power, to expect the End without procuring the Means.

The Affairs of Princes regard

4. The Affairs of Princes regard, (1.) their Neighbouring Nations; (2.) their Wives; (3.) their Children; (4.) Prelates and Clergy; (5.) Nobles; (6.) Gentry; (7.) Merchants; (8.) Common People; and, (9.) their Soldiery; from each whereof Dangers arise, unless carefully prevented.

their Neighbours,

5. (1.) As for their *neighbouring Nations*; no general Rule of Caution can be given; because of the difference of Occasions; except this, which always holds, that the Prince keep constant Watch, whether any of his Neighbours over-grow, by Increase of Territory, Trade, or the like; so as to become more formidable than before. And this is generally the Office of *Standing Councils*ⁿ to foresee, and prevent. The Opinion of certain Schoolmen is not to be admitted; as if a War were unjust, except upon preceding Injury or Provocation: for a just Fear of impending Danger,

¹ See the following Essay.

^m *Sunt plerumque Regum voluntates vehementes; & inter se contraria.*

ⁿ See above, Essay I. §. 10.

Danger, is doubtless a lawful Cause of a War; tho no hostile Violence had been offer'd^o.

6. (2.) For their *Wives*; there are cruel Examples of the kind. *Livia Wives*, is infamous for poisoning *Augustus Caesar*; *Roxolana* was the Destruction of *Sultan Mustapha*; the Queen of *Edward the Second of England*, had the principal Hand in deposing and murdering him. And this kind of Danger is to be chiefly fear'd, when the Wives have Children by a former Husband, or live in Adultery.

7. (3.) For their *Children*; the Tragedies acted by them are many: and *Children*, in general, the Suspicions harboured by Fathers against their Children, have proved unfortunate. The Murder of *Mustapha* was so fatal to *Solyman's* Line, that the Succession of the *Sultans* from *Solyman* to this Day, is suspected to be spurious; because *Selymus* the Second was thought to be supposititious. And many the like Examples there are; but few or none where the Fathers have received any Advantage from their Distrust; except where the Sons were in open Rebellion against them; as *Selymus* the First against his Father *Bajazet*: and the three Sons of *Henry* the Second of *England*.

8. (4.) There is also Danger from their *Prelates*, when powerful or *Prelates and* aspiring; as in the times of *Anselm* and *Thomas à Becket*, Archbishops of *Clergy*. *Canterbury*, who with their Crossiers almost disputed it with the King's Sword; yet they had to deal with lofty and courageous Kings, *William Rufus*, *Henry* the First, and *Henry* the Second. But this Danger from Prelates is not much to be feared, except where the Clergy depend upon the Authority and Jurisdiction of a foreign Prince; or where the Ecclesiasticks are chose by the People, and not presented by the King, or any particular Patron.

9. (5.) As for their *Nobles*; these are to be restrained, and kept as it *Nobles*, were at a due distance from the Throne. To depress them may indeed make a King more absolute; but at the same time more unsafe, and less able to act his Pleasure; as I have observed in my History of *Henry* the Seventh, who continually depressed his Nobility; whence his Times were full of Difficulties and Troubles: for the Nobility, tho they continued loyal, yet did not co-operate with him in his Affairs; so that in effect he acted by himself.

10. (6.) As for the *Gentry*; there is not much Danger from them; be- *Gentry*, cause they are a Body dispersed. They may sometimes indeed discourse high, but have little effect: besides, they should be encouraged as an excellent Counterpoise to the Nobility; so as to prevent their growing too potent. And again, their Authority being immediately exercised over the common People; they can best allay popular Commotions.

11. (7.) The *Merchants* are like the *Vena Porta*; and unless they flourish, a Kingdom may have some good Limbs indeed, but will have empty Veins; and a wasted Body. Immoderate Taxes and Imposts upon them, seldom encrease the King's Revenue; for what he thus gains in the Parts, he

* See the Author's Discourse of a War with Spain, Vol. II. Supplem. 12.

Common
People.

And the
Soldiery.

Two Admo-
nitions to
Kings.

he loses in the Whole ; the particular Rates being enlarged, whilst the national Trade is diminishing.

12. (8.) There seldom arises any Danger from the common People ; unless they are headed by powerful and popular Leaders ; or unless a Change is introduced in Religion, and their ancient Customs ; or unless heavy Taxes are imposed ; or their way of living otherwise abridged.

13. (9.) Lastly for the *Soldiery* ; 'tis extremely dangerous where they remain in a Body, whether by way of Army or Garrison, and are used to Donatives : this we see remarkably in the *Janizaries*, and the *Pretorian Bands of Rome*. But the raising and exercising of Soldiers, provided it be in different Places, under several Officers, and without Donatives, are things of Use, Defence, and no Danger.

14. Princes are like the celestial Bodies, that cause happy or unhappy Times by their Influence ; and receive much Veneration, but no Rest. All the Precepts with regard to the Admonitions to Kings, are comprehended under these two ; *Remember thou art mortal : and remember thou art God's Vicegerent*. The one tends to bridle their Power, and the other to regulate their Will.

ESSAY III. Of AMBITION.

The Nature of
Ambition.

Ambition is like the Bile, which if unobstructed, renders Men active, brisk, and eager ; but if stopped, becomes adust, malignant and venomous : for thus ambitious Persons, if the Way prove open for their rising, so that they continually advance, are rather busy than dangerous ; but if checked, and sometimes frustrated in their Desires, they become secretly discontent ; look upon Men and Things with an evil Eye ; and are inwardly best pleased at Misfortunes : which is a bad Temper in any Servant of a King or State. Princes therefore, if they employ ambitious Officers, should make them always progressive, and never retrograde. But as this cannot be done without Inconvenience, it were better not to employ such Persons at all : for if they rise not with their Service, they will endeavour to sink their Service with them.

The Uses of
ambitious
Men.

2. Good Generals and Leaders must however be chose, tho they are ambitious ; because the Usefulness of their Service over-balances the Inconvenience : and to choose a Soldier without Ambition, is to pull off his Spurs. Ambitious Men are also highly useful, as Screens to Princes in Matters of Danger and Envy : for no Man will take this Post unless he be like a blinded Pigeon, that mounts because he cannot see about him. There is another considerable Use of ambitious Men, in pulling down the Greatness of any Subject that over-tops ; as *Tiberius* used *Macro* in pulling down *Sejanus*. Since therefore ambitious Men are necessary in the Cases

above-

* See more upon this Subject in the *De Augment. Scientiar.* Vol. I. Sect. XXV. under the Doctrine of Government. Again in the *Sapientia Veterum*, Sect. III. Vol. II. Supplement. 12, 13. See also the following Essays.

above-mentioned; let us see by what means they may be curbed and restrained, so as to prove less dangerous.

3. And first, they are less dangerous when of mean Birth, than when noble; when rather harsh in their Nature, than gracious and popular; and if rather new raised, than when grown subtle, and fortified in their Greatness. 'Tis generally accounted a Weakness in Princes to have Favourites; but in reality, this of all others is the best Remedy against any exorbitant Power of the Nobles, or great Officers: for when the Power of forwarding and retarding lies in the Favourite, 'tis almost impossible for another to be over-great.

How ambitious Men are to be curbed.

4. A second useful Means of curbing them, is to balance them by others as ambitious as themselves. But then there should be some moderate Counsellors to interpose and keep Matters steady; for without this Ballast, the Ship will roll too much. At least, a Prince may encourage and animate some meaner Persons to be Scourges to ambitious Men. To keep them under apprehension of Ruin, may have a good Effect in timorous Natures: but this would precipitate the Stratagems and Endeavours of such as are bold and daring; and thus prove dangerous. If Necessity requires they should be pulled down, and yet it is not safe to do it of a sudden; the best Way is continually to interchange Favours and Disgraces, in order to surprize and confound them; that they may not know what to expect, but walk as it were in a Wood.

A second Means.

5. The Ambition of prevailing in great Things, is less hurtful than that of intermeddling in all; which causes Confusion of Councils, and destroys Business: yet there is less Danger from an ambitious Man, active in Business, than from one that is powerful in Interest and Dependants. He who endeavours to excel amongst able Men, has a great Task; but this is always of publick Advantage: whereas, he who contrives to keep wise Men out of the way, that himself may be the only Figure amongst Cyphers, is the Pest of an Age.

Different kinds of Ambition.

6. Honour is recommended by three Advantages; viz. (1.) the Power of doing good; (2.) Access to Potentates; and, (3.) an Opportunity of raising ones private Fortune. He who in aspiring has the best of these three Intentions, is honest; and the Prince who can discern and distinguish them in his Servants, is wise. But, in general, Princes should endeavour after such Ministers as are led more by Duty, than by Ambition; and such as love Business rather out of Conscience, than Ostentation. And lastly, let Princes judiciously distinguish betwixt a busy Temper and a willing Mind.

The Advantages of Honour.

ESSAY IV. OF GREAT PLACE.

*The Incon-
veniences of
Great Place.*

1. **M**EN in great Place are thrice Servants ; Servants of the Sovereign ; Servants of Fame ; and Servants of Business : so that they enjoy no Liberty, either in their Persons, Actions, or Time. 'Tis a strange Passion to covet Power, and lose Liberty ; or to affect Power over others, and lose it over ones self. The rising in Office is laborious ; and one painful Step leads to another more painful : sometimes also it is ignoble ; and Dignity acquired with Disgrace. The Standing is slippery, and the Return either a Fall, or at least an Eclipse ; which itself is a melancholy thing¹. Nay, Men cannot retire when they would ; nor will they when they should : but grow impatient of Privacy, even under Age and Sickness, which require the Shade : thus acting like old Townsmen, who will be still sitting at their Street-door, tho they thereby expose themselves to Scorn.

*Men in high
Posts only
happy by re-
port.*

2. Men in great Place had need borrow other Mens Opinions to think themselves happy ; for if they judge by their own feeling, they cannot find it : but if they revolve with themselves, what other Men think of them ; and how willingly others would change Conditions with them ; it is then they are happy, as it were by Report : when perhaps they find the contrary within. For they are the first that find their own Misfortunes ; but the last that find their own Faults. Men in high Station are certainly Strangers to themselves ; and in their Hurry of Business, want time to attend their own Health, both of Body and Mind².

*The Advan-
tages of Great
Place.*

3. Great Place affords great Opportunities both of doing Good and Evil : the latter whereof is to be accounted a Curse ; for in Evil the best Condition is not to will ; the second, not to be able. But to acquire the Power of doing Good, is doubtless the true and lawful End of Aspiring. For good Thoughts, tho God accept them, are with regard to Man, little better than good Dreams ; unless reduced to Action : and that cannot be done without some publick Post, and Power ; in the way of the commanding Ground. Merit and good Works are the true Ends of Man's Labour ; and Consciousness of the same, is the Perfection of his Rest. *And the Lord looked, and beheld the works of his hands, and saw that all was extremely good :* And then followed the Sabbath. Thus if a Man can be a Partaker of God's Work, he shall likewise be Partaker of his Rest.

*Precepts for
Men in Office.*

4. In the Discharge of thy Office, set before thee the best Examples ; and after some time, thy own Example ; examining thyself strictly, whether thou didst not begin better, than thou holdest on. Nor neglect the Examples of such as have behaved ill in the same Post ; tho this not to set off thyself

¹ *Cum non sis qui fueris, non esse cur velis vivere ?*

² *Illi mors gravis incubat,
Qui notus nimis omnibus,
Ignotus moritur sibi.*

thyself by taxing their Memory ; but to learn what to avoid. Reform, therefore, without Ostentation, or Scandal to former Times and Persons ; yet ever observe to set good Presidents, as well as to follow them. Reduce things to their first Institution ; and examine wherein, and by what means they have degenerated : yet consult with both Times ; with the ancient to learn what is best ; and with the later to know what is fittest. Endeavour to confine all Acts of Power to Rule ; that Men may know before-hand what to expect : yet be not too positive and peremptory ; and carefully to explain the Reason, when thou digressest from thy Rule. Preserve the Right of thy Place ; but without moving Questions of Jurisdiction : and rather assume and exercise thy Right with Silence and in Fact, than claim and challenge it with Vociferation. Preserve likewise the Rights of inferior and subordinate Places ; and think it more Honour to direct in chief, than to be busy in all. Embrace and procure Assistance and Information, as to the Execution of thy Office : and drive not away, as Medlers, those that offer their Service therein ; but rather invite and receive them with Favour.

5. The Vices apt to attend the Exercise of Authority, are chiefly four ; *The Vices attending the Exercise of Power, viz. Delays, Corruption, Roughness, and Facility.* With regard to *Delays*, give easy Access ; keep appointed Times ; go thro with what is in hand ; and admit no new Business but of Necessity.

6. For *Corruption* ; not only bind thy own Hands, and the Hands of thy Servants, from taking ; but the Hands also of Suitors from offering Bribes. The first End is secured by the Use of Integrity ; and the second, by Integrity profess'd, with a manifest Detestation of Bribery : and avoid not only the Crime, but the Suspicion. Whoever is found variable, and changes manifestly without manifest Cause, gives Suspicion of Corruption. Therefore, whenever a Man in Office changes the Opinion he had once declared, or the Course once entered upon ; let him always profess it ingenuously ; and at the same time fully explain and inculcate the Reasons that moved him thereto ; without hoping to escape unobserved. A favourite Servant that has Interest with his Master, without any manifest Cause of Esteem, is commonly thought no other than an oblique Way to Corruption.

7. As for *Roughness* ; it occasions Envy and Ill-will, without receiving any Advantage ; for Severity occasions Fear ; but *Roughness*, Hate : whereas even Reproofs from Authority should be grave, and not reproachful.

8. *Facility* is worse than Bribery : for Bribes are seldom offer'd ; but if a Man be sway'd by Importunity, or idle Respects, these are always at hand. Thus Solomon says ; *to respect persons is not good : for such a man will transgress for a piece of bread.*

9. 'Tis a true saying, *Place shews the Man* ; and it shews some to Advantage, Place shews others not. Tacitus says, *that Galba was universally allowed fit to govern, till he became Emperor : And that Vespasian alone, of all the Emperors, was alter'd for the better.* It is an evident Sign of a generous Disposition, when Honour improves the Man ; for Honour is, or should be, the Place of Virtue : and

as in Nature, Things move violently to their Place, and calmly when they are in it : so Virtue is violent in Ambition ; but in Honour more calm.

The Way of rising.

10. There is no rising to great Place, but by winding Stairs ; and if Faction reigns, it is best for a Man to take his Side in rising ; and to balance himself when raised.

Rules for Behaviour in Office.

11. Hurt not the Memory of thy Predecessor ; otherwise it is a Debt will be repaid thee by thy Successor. If thou hast Colleagues in Office, treat them as Friends ; and rather call them when they do not expect it, than exclude them when it is proper they should be called. Mention not thy Office too much in Conversation ; but let it be rather said, *when he sits in his Place, he is another Man.*

ESSAY V. Of FOLLOWERS and FRIENDS.

Followers of what sort to be chose, and to what entitled.

1. **E**Xpensive Followers are not to be admitted ; lest whilst a Man makes his Train longer, his Wings grow shorter. Under expensive Followers, I reckon not only those who charge the Purse ; but such also as are importunate and troublesome in their Petitions. Ordinary Followers ought to expect no higher Conditions than Countenance, occasional Recommendation, and Protection from Injuries.

Factionous Followers.

2. Factionous Followers are still more to be avoided, who apply not out of Affection to their Patron ; but Hatred to another Person : whence often proceeds that Misunderstanding we see between Men of Power.

Boasting Followers.

3. Again, those boasting Followers are pernicious, who like Trumpets resound the Praise of their Patrons : for such Followers taint Business by divulging it ; and, if well considered, export the Honour of their Patron, and bring him Envy in return.

Spying Followers.

4. There is another kind of Followers who are extremely dangerous ; being indeed no other than Spies, that search out the Secrets of the Family, and whisper them to others. Yet such Followers often stand high in the Favour of their Patrons ; because they are officious, and generally exchange Whispers.

Followers of the same Order with the Patron.

5. The Patronage of certain Orders of Men, of the same Profession with the Patron ; as for a General to patronize Soldiers, &c. has been always esteem'd a graceful Thing, and well received even in Monarchies ; provided it be done without much Pomp or Popularity.

The most honourable and useful Followers.

6. But the most honourable kind of Patronage, is for a Person to profess himself the Patron of those who are eminent in Virtue and Merit ; of whatever Order or Condition they are. But where there is no remarkable Difference in Merit, 'tis better to patronize the somewhat less, than the more virtuous. For, to speak the naked Truth, active and industrious Men are more servicable in corrupt Times, than the truly virtuous.

Followers, how to be used.

7. In Government indeed 'tis best to treat Subjects of the same Rank equally : for highly to countenance a few, is to make them insolent ; and the rest discontented : since Parity of Rank requires Parity of Favour, as its Due. On the

the other hand, in matters of mere Favour, it is proper to use Men with Distinction and Choice; for this will make the Persons preferred more thankful, and the rest more officious: nor can any one here justly complain, because the whole is matter of Favour, not of Duty.

8. 'Tis a Point of Discretion, not to favour any Man too highly at the first; because succeeding Favours can scarce hold in the same Proportion. To be moulded and governed by any one Friend, is not safe; because it shews Softness, and gives occasion to Scandal and Disrepute: for many that would not immediately censure ourselves, will take greater Liberties with our Intimates, and thus wound our Honour. Yet to be subject to the Power of many, and differently distracted thereby, is still worse; for this makes a Man to be of the *last Impression*, and full of Inconstancy.

Cautions required with regard to Followers and Friends.

9. To consult with some few Friends is honourable and useful: for By-standers often see more than the Players; and the Vale best discovers the Hill.

To take Advantage of a few.

10. There is little true Friendship in the World, and the least of all between Equals; which is the kind so much magnified by the Ancients. All there is lies betwixt Superior and Inferior; whose Fortunes may each comprehend the other.

Little Friendship in the World.

ESSAY VI. Of NOBILITY.

1. A Monarchy without Nobles, is an absolute Tyranny; as in the *Turkish Empire*: for Nobility tempers Sovereignty; and somewhat draws the Eyes of the People from the regal Line. But Nobles are not required in Democracies; which commonly prove less subject to Faction and Disturbance, where there are no Stirps of them: for then Mens Eyes are fixed upon Business, not upon Persons: or if upon Persons, 'tis for the sake of the Business; as such Persons are fittest to manage; and not for their Arms and Ensigns.

Nobility necessary in Monarchies, not in Republics.

2. The Republick of *Switzerland*, we see, continues to flourish; notwithstanding their Diversity of Religion, and of Cantons: for not Dignity, but Utility is their Bond. The Form of Government in the United Provinces of *Holland* is excellent: for where an Equality reigns, the Debates are more impartial; and the Taxes more chearfully paid.

The Advantages of Republics.

3. For the Nobles to have great Authority in a Monarchy, adds Majesty to the Monarch; but diminishes his Power: it also puts Life and Spirit into the People, tho it depresses their Fortunes. 'Tis well when the Nobles are not greater than Sovereignty and Justice require; yet supported with such a Dignity, as may break the Insolence of the People, before it pours too fast upon the Majesty of Kings. On the other hand, a numerous Nobility, which is generally less powerful, causes Poverty in a State; as occasioning a Profusion of Expence: and as many of the Nobles must in time necessarily

The Advantages and Inconveniences of Nobility to a Kingdom.

¹ See the Essay on Friendship, Sect. I. Essay 5.

become indigent ; this makes a kind of Divorce or Inequality between Riches and Honour.

The Advantage of Nobility in particular Persons.

4. As for *Nobility* in particular Persons ; it is a venerable thing to see an ancient Castle, or Seat undecay'd ; or an old Timber-tree sound and perfect : but much more venerable to behold an ancient noble Family unhurt by the Waves and Storms of Time. For new Nobility is the Act of regal Power ; but ancient Nobility the Work of Time.

The Founders of noble Families often more virtuous than their Descendants.

5. The first raised to Nobility, commonly excel their Descendants in Brightness of Virtue, but not in Innocence : for Men seldom rise to Honours without a Mixture of good and evil Acts. But it is just that the Memory of their Virtues should continue down to Posterity ; and their Vices die with themselves.

Nobility

slackens Industry, and extinguishes Envy.

6. Nobility of Birth usually slackens Industry ; and he who is not industrious, envies another's Diligence. Besides, Nobles cannot rise much higher ; and he that stands at a Stay whilst others advance, will hardly avoid being envious. On the other hand, Nobility prevents the Envy of others ; because Nobles seem born in the Possession of Honours.

The Advantage of using Nobles to a King.

7. Certainly such a King as has prudent and able Nobles about him, will find his Business go smoother by using them chiefly : for the People naturally bend to them, as born, in some sort, to command.

ESSAY VII. *Of MASQUES and Publick Entertainments.*

The Musick Part, how to be conducted.

1. **T**HESE things are but Toys ; yet since Princes will have them, 'tis better they should be graced with Elegance, than sullied with Cost. Dancing to Song is a thing of great State and Pleasure, if the Song be in Choir, aloft, accompanied with broken Musick ; and the Tune be fitted to the Design. Acting in Song, especially in Dialogue, has an extreme good Grace. I speak this of Acting, not Dancing, (which is a mean and vulgar thing) the Voices of the Dialogue being strong and manly (a Base and a Tenor, without the Treble) and the Air high and tragical. Several Choirs placed one against another, and taking the Voice by Catches, Anthem-wise, give great Pleasure. Let Songs be loud and cheerful ; not chirping or puling. Let the Musick likewise be sharp, well placed, recreative, and mixed with some strange Changes.

The Scenes.

2. The turning of Dances into Figure, is a childish Curiosity. Change of Scenes without Noise, is a thing of great Beauty and Pleasure ; for this feeds and relieves the Eye before it is cloy'd with the same Object. Let the Scenes abound with Light, especially coloured and varied : and let the Parts that are to come down from the Scenes have some Motions upon the Scene itself, before they descend. For this attracts the Eye strangely, and makes it, with great Pleasure, desire to see what it cannot perfectly discern.

The Dresses.

3. The Colours that shew best by Candle-light, are white, carnation, and a kind of Sea-green. Spangles also, tho not costly, are of great Lustre :

* The Author seems to mean what we find in some of our best *Italian Opera's*.

stre: but rich Embroidery is lost, and not discerned. Let the Dresses be graceful, and becoming the Person, when the Vizard is off; but not common, as those of *Turks, Soldiers, Sailors, &c.*

4. Let the Anti-masques be short; they have commonly consisted of *The Anti-masque.* Fools, Satyrs, Baboons, Wild-men, Antiques, Beasts, Spirits, Witches, Pygmies, Cupids, moving Statues, and the like. As for Angels, 'tis too serious to put them in Anti-masques; and any thing hideous, as Devils, Giants, &c. is as unfit.

5. Sweet Odours arising suddenly, without any Drops falling, are highly agreeable and refreshing in large Companies. Double Masques, one of Men, another of Ladies, add State and Variety. But all is nothing, except the Room be kept clear and neat. *Perfumes.*

ESSAY VIII. Of PETITIONERS, or SUITORS.

1. **M**ANY ill Designs and Projects are enter'd upon; and private Suits corrupt the publick Advantage. Many things also, good in themselves, are undertaken with a bad Intention; or with a sinister and crafty Purpose, not directed to the Execution. Some readily lay hold of Suits, and eagerly promise to forward them, without ever intending to do it: but if they find the Business succeed by the means of others; they will fish for Thanks, take a secondary Reward, or at least, whilst the Affair is in hand, make their own Use of the Suitor's Hopes. Some embrace Suits merely with a View to cross the Purpose of another; or else subtly to exhibit an Information, for which they could not otherwise have a proper Pretext; and this without regarding what becomes of their Suit, when that Turn is served: or, in general, to make other Mens Business a Bridge to their own. Nay, some act so craftily as to undertake Suits, with a full Intention to drop them; and thus oblige their Competitor. *The Double-dealing practis'd in Petitions.*

2. Certainly, if consider'd, every Suit is attended with a certain Right; viz. a Right of Equity, if it be a Suit of Controversy; or a Right of Merit, if it be a Suit of Favour. When Affection leads a Man to favour the wrong Side in a Suit of Equity; let him rather use his Authority to compound the Matter, than to carry it. If Affection incline a Man to the less worthy in a Suit of Favour; let him not however calumniate the more deserving Person. *Every Suit attended with a Right.*

3. Suits which a Man does not well understand should be committed to some Friend, of Fidelity and Judgment, for his Opinion, whether they may be honourably engaged in; but this Friend must be prudently chose, to prevent being imposed upon. *Opinion to be taken in doubtful Suits.*

4. The Suitors of these times are so harrassed with Delays and Abuses, that Plain-dealing in rejecting their Suits at first, and nakedly reporting the Success, without laying claim to more Thanks than are merited, is become not only a laudable thing, but a Favour. *Plain-dealing in Suits esteem'd a Favour.*

*The first
in a Petition
of no great
weight.*

5. In Suits of Favour, to give in the first Petition should be a thing of no weight; tho so far Regard may be had to the Fidelity of the first Petitioner, in making the Discovery, that if the Intelligence could not be otherwise procured, this should prove no Prejudice; but rather an Advantage to him. To be ignorant of the Value of the Thing sued for is Simplicity; as to neglect the Right thereof, argues a bad Conscience.

*Cautions to
be observed in
petitioning.*

6. Secrecy in Suing is a great means of obtaining; for to boast of Hopes, tho it may discourage some Competitors, will quicken others. But Opportunity is the principal thing in Suits; not only with respect to the Person, who has the Power of granting or refusing; but also with respect to those who are likely to cross the Petition. In the Choice of the Person to whom the Care of the Suit is committed, regard Fitness before Greatness; and rather employ one that engages but in certain matters, than one that grasps at all. A repeated Denial is sometimes equal to a Grant, if the Petitioner appears neither dejected nor discontented.

*Where a great
thing or a less
should be
asked.*

7. Ask a great thing to obtain a moderate one, is a good Rule, where a Man stands well in Favour; otherwise it were better gradually to rise to the main thing intended: for he who would have ventured at first the Loss of his Suitor's Service, will not at last willingly lose both that and the Benefit of his Favours already conferr'd.

*Letters of Re-
commenda-
tion.*

8. It is thought a small matter to request the Recommendatory Letters of a great Person; yet if these be given in an unjust or dishonourable Cause, they detract so much from the Reputation of the Writer.

*General Con-
trivers of
Suits.*

2. There is not a more pernicious Set of People in a State, than general Contrivers of Suits; for they are the Pest and Bane of publick Business.

ESSAY IX. Of NEGOTIATING.

*When best to
negotiate by
Letter, and
when in Per-
son.*

1. 'TIS generally better to negotiate by Speech, than by Letter; and by the Mediation of a third, than in ones own Person. Letters are useful, (1.) when an Answer is desired in Writing; (2.) when it may be of service to produce ones own Copies; and, (3.) lastly, when there is Danger of being interrupted in Discourse, or heard by Piece-meal. On the other hand, it is better to negotiate in Person, (1.) when a Man's Face is apt to strike an Awe; as it generally does in discoursing with Inferiours. (2.) In tender Points, where Direction may be taken by the Eye fixed upon the Countenance, how far to proceed: and, (3.) generally where a Man would reserve to himself a liberty, either of disowning or explaining.

*The Persons
to be employ'd
in negotia-
ting.*

2. In negotiating by others it is more prudent to choose plain Men, and such as are likely to perform the Trust reposed in them; and faithfully report the Success; than such as are cunning at contriving, out of other Mens Business, somewhat of Honour or Advantage to themselves; and soften the Answer they bring back, in order to please. Employ also such Persons as affect the Business entrusted with them; for that is a Spur to Industry: and again,

again, such as are fit for the thing they undertake; as bold Men for Expostulation; fair-spoken Men for Persuasion; crafty Men for strict Enquiry and Observation; refractory and somewhat absurd Men where matters are not quite fair, &c. Use also such as you have successfully employ'd before; for this breeds Confidence; and they will endeavour to maintain the Opinion conceived of them.

3. 'Tis more proper to sound a Person at a distance, than to fall directly upon the Point at first; except you mean to confound and surprize him by some short Question. It is better to negotiate with Men in pursuit, than with those who have obtained their Ends. If you negotiate with another upon Conditions, it is a principal Point who begins to perform first. This one cannot reasonably demand of another; unless the Nature of the thing requires it to precede; or we can dextrously persuade the other, that he will want our Assistance in something else; or unless ourselves are accounted Men of great Veracity and Integrity.

Directions for negotiating to advantage.

4. All Negotiating tends either to *discover* or to *effect*. Men discover themselves either in Confidence, Passion, Surprize, or of Necessity, when they want a proper Pretext. If you would mould a Man to your Turn, you must either well understand his Temper and Inclinations, and so lead him; or his Ends, and persuade him; or his Weakness, and so awe him; or else you must win over those that have greatest Interest in him, and so govern him.

The Ways of moulding Men.

5. In negotiating with subtle and crafty Persons, no regard must be had to their Words; unless you have their Ends and Intentions to interpret them by. It is also the best way to say little to them, and what they least expect.

How to negotiate with the Crafty.

6. In all Negotiations of Difficulty, a Man must not hope to sow and reap at once; but should prepare Business, that it may ripen by degrees.

Difficult Negotiations not to be hurried.

ESSAY X. Of PLANTATIONS.

1. **P**lantations are eminent amongst ancient and heroical Works. When the World was young it produced more Children; but now it is old, it produces fewer: for we may reckon new Plantations to be the Children of more ancient Nations. I approve of those Plantations where one People is not destroy'd to make room for another: otherwise it is an Extirpation, not a Plantation.

Plantations heroical Works.

2. Planting of Countries resembles the planting of Woods; which is attended with a Loss of twenty Years Profits, tho' richly rewarded in the end. And the chief Bane of Plantations has been the sordid and hasty catching at Profit in the beginning. Quick Returns indeed are not to be neglected, so far as consists with the Good of the Plantation, but no farther.

Hasty Profits the Bane of Plantations.

3. 'Tis

* See the Doctrine of Business in the *De Augment. Scientiar.* SECT. XXIV.

*Not to people
with Felons,
Outlaws, &c.*

3. 'Tis base and unprosperous to plant with the Scum of a People, Outlaws and condemn'd Malefactors. This also corrupts and destroys the Colony; for such profligate Wretches will live like Vagabonds, and not work; but commit Outrages, consume Provisions, grow weary of the Place, and then write over to the Prejudice and Discredit of the Plantation.

*The Trades to
plant with.*

4. Let the People carried over be chiefly Gardeners, Ploughmen, Labourers, Smiths, Carpenters, Joiners, Fishermen, Chirurgeons, Apothecaries, Cooks, Bakers, Brewers, and the like.

*The Method
of planting.*

5. First examine what kind of Esculents and Potulents the Country yields spontaneously; as Chesnuts, Walnuts, Pine-apples, Olives, Dates, Plumbs, Cherries, wild Honey, and the like. Then consider what kinds of esculent things the Soil will produce within the Year; as Parsnips, Carrots, Onions, Cabbage, Radishes, Melons, Pompions, Cucumbers, Jerusalem-Artichokes, Maiz, &c. Wheat, Barley, and Oats require too much Labour: but Pease and Beans may be begun with, both because they require less Labour, and serve for Meat, as well as for Bread. Rice likewise yields a large Increase; and is also a kind of Meat. But there should at first, be chiefly brought in, Plenty of Bisket, Oatmeal, Flower, Meal, &c. to serve, till Bread may be procured upon the Spot.

*The Beasts
and Birds to
be carried
over.*

6. For beasts and Birds; take chiefly such as are least subject to Diseases, and breed the fastest; as Swine, Goats, Cocks and Hens, Turkeys, Geese, House-doves, Rabbits, and the like. Fishing must be closely follow'd; both for the Support of the Colony, and also for the Profit upon Exportation.

*The Husband-
ing required
in the Provi-
sions.*

7. The Provisions in a Plantation should be almost as sparingly distributed, as in a besieged Town; that is, by a certain Allowance. And let the main part of the Ground be converted to Gardens or Corn-fields, for raising a common Stock, to be preserv'd in publick Granaries, and dispensed in proportion; whilst some Spots however remain for Particulars to exercise their Industry upon.

*The Commo-
dities to be
sought after.*

8. Consider likewise what Commodities the Country naturally yields, that the Exportation thereof to the best Market, may help (as in the Case of Tobacco at *Virginia*) to defray the Charge of the Plantation: provided this be not, as we before observed, to the untimely Prejudice of the Colony. Woods commonly abound in desert Countries; and therefore Timber fit for Building, Shipping, and the like Uses, may prove a capital Commodity. If there be Iron-ore, and Streams for Mills, Iron is an excellent Commodity where Wood abounds. The making of Bay-Salt by the Heat of the Sun should be attempted, if the Climate be proper for it. The growing of vegetable Silk likewise upon the Spot is a gainful Business. Pitch of all sorts may be made where there is Plenty of Firs and Pines. So again, Drugs and Sweet-woods, where they are found, yield considerable Profit. Pot-ashes likewise may be gainful; and other things may be enquired after. But depend not too much upon Mines, especially at first; for Mines are
very

very fallacious and expensive, and by the pleasing Hope they afford, apt to render the Planters indolent in other respects.

9. Let the Government of the Colony be committed to a single Person, assisted with Council: and let them have Commission to exercise Martial Laws, with some Limitation. Above all, let Men make that Advantage of being in the Wilderness, as to have God always, and his Service, before their Eyes. The Government should not depend upon too many Counsellors, and Undertakers in the Plantation; but upon a moderate Number; and those rather of the Nobility and Gentry, than Merchants, who are too intent upon the present Gain. Let there be an absolute Freedom from Customs and Imposts, till the Plantation be grown strong: and full liberty of exporting Commodities to all parts allowed; unless there be some weighty Reason to the contrary.

The Government of the Plantation.

10. Let not the Colony be surcharged, by sending Company after Company; but rather learn how they waste; and only send Supplies proportionably; that the whole Number may live commodiously, without struggling with Want.

The Colony not to be overstock'd.

11. The building too near the Sea or Rivers, in marshy and damp Places, has proved very prejudicial to the Health of many Plantations: and therefore, tho it may be sometimes proper to begin in such Places, for the Convenience of Carriage, and other Advantages; yet build gradually up from the Water, towards the higher parts of the Country. It likewise imports the Health of the Plantation to have Plenty of Salt, for preserving their Meat, which might otherwise often corrupt.

To build from the Sea.

12. When a Plantation is carried on among Savages, amuse them not wholly with Trifles; but oblige them by just and courteous Usage; tho without abating of any necessary Guard. Neither procure their Favour by helping them to invade their Enemies: but to defend them when attack'd, may not be improper. 'Tis also of Use frequently to send over some of the Natives to the Mother-Country; that they may there see a much better Way of living than their own; and publish it to their Fellows at their Return.

The native Savages how to be treated.

13. When the Plantation is grown to some Strength, it will be time to bring in Women; that the People may propagate within themselves, and not always depend upon foreign Assistance.

When Women are to be admitted.

14. 'Tis a most heinously wicked thing to forsake and abandon a Plantation once in Forwardness: for besides the Dishonour, 'tis mere Treachery, and being guilty of the Blood of many miserable Men.

A heinous thing to abandon an advanced Plantation.

* See more upon this Subject in the Author's Letter to King James, concerning the Planting of Ireland, Vol. I. Supplem. V. See also the Prudent Statesman, Vol. II. Supplem. XIII.

ESSAY XI. Of INNOVATIONS.

*Innovations
the misshaped
Births of
Time.*

1. **A**S the Births of living Creatures appear ill-shaped at first; so do all Innovations, which are the Births of Time: and as the first Ennoblers of their Family generally out-shine their Descendants in Dignity; so the first good Precedent is seldom equal'd by the Imitation of After-ages. For Evil in human Nature has a natural Motion, which grows stronger by Continuance: whilst Good, as in all forced Motion, is strongest at first.

*Medicine and
Time Innova-
tors.*

2. Certainly every Medicine is an Innovation; and he who will not apply new Remedies, must expect new Distempers: for Time is the greatest Innovator. And if Time, of course, alters Things for the worse, and Prudence and Industry shall not endeavour to alter them for the better, what End will there be of the Evil?

*The Advan-
tages of Cu-
stom and
Change.*

3. It must be allow'd, that what is settled by Custom, tho less good; yet at least is suited to the Times; and that things, which have long rolled together, are joined as it were by Confederacy: whereas new things do not so well suit with old; but tho they please by their Utility, yet disturb by their Novelty and Non-conformity. And surely Novelties are like Strangers; more admired, and less favoured.

*To be tenaci-
ous of Cu-
stom as perni-
cious as Inno-
vation.*

4. All this is true, if Time stood still; but on the contrary, it moves constantly round: whence a stiff and obstinate Retention of Custom is as turbulent as Innovation; and they who superstitiously reverence ancient Times, become a Scorn to the present. It were therefore proper for Men in their Innovations to imitate Time, which innovates greatly; but quietly, by Degrees, and almost imperceptibly. And this is certain, that Novelty comes unexpected, and adds something to one Man, and takes away from another; whilst he who receives Advantage by the Innovation, thanks Fortune and the Times: but he who is hurt by it, accuses the Author of the Innovation.

*New Experi-
ments not to
be rashly tried
in States.*

5. 'Tis proper also not to try new Experiments in the political Body; unless the Necessity be urgent, or the Utility evident: and take great Care that the Desire of Reformation may occasion the Change; and not the Desire of the Change plead for Reformation. Again, let all Novelty, tho it cannot perhaps be rejected, yet be held suspected. And lastly, as the Scripture directs, *Let us stand upon the old Paths, and see and ask for the good Way, and walk therein.*

ESSAY XII. Of FACTIONS or PARTIES.

1. **I**T is an erroneous Opinion, tho generally receiv'd, that a Prince in governing his People, or a great Person in conducting his Affairs, should have a principal regard to the prevailing Factions; as if this were a capital Point of Policy or Prudence. On the contrary, the prudential Talent is chiefly seen either in the Regulation of those things which regard all Men equally, and wherein different Factions agree; or in soothing, reconciling, and treating with particular Persons. The Consideration of Factions is not however to be neglected. Men of low Fortune must, in their rising, adhere to some Party: but the Great, who have Strength within themselves, had better preserve a Neutrality. And for Candidates to side so cautiously, as to seem of one Party without being obnoxious to the other, is finding a Way to Preferment thro the midst of Factions. How to deal with Factions.

2. The lower and weaker Faction proves, generally, the firmer and more lasting in Conjunction: and it is often found, that a few who are obstinate and resolute, will in the end tire out and depress a more numerous moderate Faction. When one Faction is extinguished, the other subdivides: as the Faction of *Lucullus* and the Nobles continued vigorous for some time, against that of *Pompey* and *Cæsar*; but when the Authority of the Senate and Nobles was sunk, the Faction of *Cæsar* and *Pompey* soon broke. And the same holds in Civil, as well as Military Factions. Hence those that are second in Factions, often prove Principals when the Faction subdivides: But on the other hand, they frequently lose all Power; for many a Man's Strength lies in Opposition; and when that ceases, he presently slackens. 'Tis no less remarkable than common, for Men that have gained their Ends, and seated themselves in the Place they courted, to side with the contrary Faction; thinking, perhaps, they are secure of the former Party, and are now prepared to purchase the other. The Procedure of Factions.

3. The Traitor in Faction generally succeeds best: for when matters have long hung balancing, some one going over to the contrary side, casts the Scale, and obtains all the Thanks. To carry it evenly between two Factions, does not always proceed from Moderation; but sometimes from Subtilty; (as a Man is constantly truest to his own Ends) and expecting to make an Advantage of both Parties. In *Italy* they suspect the Pope, when they have *Padre commune* frequently in their Mouths; and observe it as a Sign that he is bent upon aggrandizing his own Family. Traitors in Faction often successful.

4. Kings should be very cautious of professing and making themselves of any Faction or Party with their Subjects: for Leagues of Confederacy within the State are always destructive to Monarchies; as introducing an Obligation superior to that of Sovereignty, and making the King as one of us. Kings not openly to side with any Faction.

*Factions how
to be govern'd
by Princes.*

5. When Factions are openly carried with a strong Hand, 'tis a Sign of a declining Power in Princes; and greatly prejudices both their Authority and Business. The Motions of Factions, under Kings, should be like the astronomical Motions of the inferior Orbs; where each Orb has its own proper Motion; but in the mean time, they all quietly revolve with the higher Motion of the *Primum Mobile*^x.

ESSAY XIII. Of SEDITIONS and TROUBLES.

*The Prognos-
ticks of State-
Tempests.*

1. **T**HE Shepherds of the People should understand the Prognosticks of State-Tempests; which are commonly greatest when matters tend to an Equality: as the natural Tempests are greatest about the *Equinox*. And as hollow Blasts of Wind seemingly at a distance, and secret Swellings of the Sea, often precede a Storm; the Case is parallel in the Storms of a State. Scandalous Libels; licentious and reflecting Discourses, flying thick and openly; false Rumours every where spread, and greedily receiv'd, to the Disadvantage of the Government, are certain Prognosticks of Troubles. *Virgil*, in giving the Origin of Fame, makes her Sister to the Giants²; as if Rumours were the Reliques of past Seditions: but they are also Preludes of Seditions to ensue. It is however well observed, that seditious Tumults, and seditious Rumours, differ but as Brother and Sister, Male and Female; especially when Matters are at such a height, that the most meritorious Actions of the State, which should give the greatest Satisfaction, are misconstrued and traduced: for this shews the Envy to be great³.

*Rumours,
how best sup-
pressed.*

2. But it does not follow, that because these Rumours are a Sign of Troubles, therefore the suppressing of them with Severity is the Remedy; for they generally vanish soonest when despised: whereas the earnest Endeavour to check them, makes them last the longer.

*Farther Pro-
gnosticks of Se-
ditions.*

3. That kind of Obedience also, which, as *Tacitus* expresses it, is readier to interpret than execute the Commands of the governing Power; should be suspected^b. To dispute, canvass, and cavil with Commands, is attempting to shake off the Yoke, and offering at Disobedience: especially if in these Disputes, they who are for the Direction, plead timorously and tenderly; whilst they that oppose it, speak obstinately and audaciously.

*Viz.
When Princes
side with
Parties.*

4. Again, (as *Machiavel* well observes) when Princes, who ought to act as common Parents, side with a Party; 'tis like the over-setting of a Boat by too much weight on one side. This appear'd remarkably in the Case of *Henry*

^x See more upon this Subject, in the *Sapientia Veterum*, Vol. I, ad finem. Sect. 3, passim. See also the following Essay.

^y ——— Ille etiam cecos instare Tumultus

Sape mones, Fraudesque & opera tumescere Bella.

² Illam Terra parens, ira irritata Deorum,
Extremam (ut porhibent) Cae, Enceladoque Sororem
Progeniuit. ———

³ Conflata magna Invidia, seu bene seu male Gesta premunt.

^b Erant in officio, sed tamen qui mallent mandata Imperantium interpretari, quam exequi.

Henry the Third of France; who from the first, would enter the League for extirpating the Protestants; when the same League soon after turned against himself. For when the Authority of Princes is made but an Accessary to a Cause, and another Bond arises stronger than that of Sovereignty, Kings begin to lose their Authority.

5. Again, when Discords, Quarrels and Factions, shew themselves openly and audaciously; 'tis a Sign that the Reverence of Government is lost: *When they lose their Reverence.* For the Motions of the Great Persons in a Government, ought to be as the supposed Motions of the Planets; every one of them carried swiftly by the highest Mover, and slowly in their own Motion. Therefore when the Great move violently in their own particular; or as Tacitus expresses it, regardless of the ruling Power^c; 'tis a Sign the Orbs are out of frame. For Reverence is the Girdle of Princes, given by God, who threatens to unloose it: *I will loosen the Girdles of Kings.* Lastly, when any of the four Pillars of Government; viz. Religion, Justice, Counsel, and Treasure, are shaken or weaken'd, Men had need pray for fair Weather. But leaving these Prognosticks to be farther illustrated by what follows; let us descend to examine, (1.) the Matter; (2.) the Causes or Movers; and (3.) the Remedies of Seditions.

6. The Matter of Sedition is a Point to be well considered; the surest means to prevent Sedition, being (if the Times will allow it) to remove the Matter of them. For if there be Fewel prepared, 'tis not easy to say from what Quarter the Sparks shall come to light it. The Matter of Sedition is of two kinds; great Poverty and great Discontent. *Poor, and Discontent.* For certainly there are as many Voices for Disturbance, as there are ruined Estates and broken Fortunes. Hence that Observation of Lucan, as to the State of Rome, a little before the Civil War^d: for when War is deem'd advantageous, this is an infallible Sign of a State disposed to Seditions and Troubles. And if the Indigence or diminished Fortunes of the first Rank, be joined with the utmost Want and Necessity in the common People, the Danger is imminent and great: For the worst Rebellions are those of the Belly.

7. As for Disaffections and Discontents, they are in the politick Body, what malignant Humours are in the natural; apt to generate præternatural Heats, and to inflame. And let no Prince measure his Danger by the Justness or Unjustness of these Disaffections and Discontents; for that were to imagine the Vulgar too rational, who often spurn at their own Good: nor again by the smallness or greatness of the Grievances from whence they rise; since those are the most dangerous Discontents, where the Fear is greater than the Feeling: for Feeling has Bounds, but Fear has none^e. Besides, in great Oppressions, the things that provoke, at the same time abate the Courage: but in Fears it is otherwise. Neither let any Prince or State lightly

^c Liberius quam ut Imperantium meminissent.

^d Hinc Usura vorax, rapidumque in tempora Fœnus;
Hinc concussa Fides, & multis utile Bellum.

^e Dolendumque, Timendi non item.

lightly esteem a Discontent, for having raged long or often, without Prejudice to the Government: for as every Vapour does not turn to a Storm; so Clouds, tho they often blow over, yet gather and fall in a Storm at last.

The Causes of Sedition.

8. The Causes of Sedition are, (1.) Innovation in Matters of Religion; (2.) Taxes and Imposts; (3.) Alteration of Laws and Customs; (4.) Violation of Immunities and Privileges; (5.) General Oppression; (6.) the advancing of unworthy Persons; (7.) Admission of Foreigners; (8.) Dearths; (9.) the disbanding of Soldiers without a Provision; (10.) Factions grown desperate; and, (11.) in short, whatever offends the People, so as to make them unite and conspire together in a common Cause.

Its Remedies.

9. As for *Remedies*, there are some general Preservatives, which we shall here mention; but the just Cure is to be suited to the particular Disease; and must therefore be left to Council, rather than Precept. The first Remedy or Prevention of *Sedition*, is, by all possible means, to remove its material Causes, *Poverty* and *Discontent*^f. To the removing of Poverty, tends, (1.) the opening and balancing of Trade; (2.) the introducing and supporting of Artificers and Handicraftsmen; (3.) the banishing of Sloth and Idleness; (4.) the suppressing of Luxury and Profusion by sumptuary Laws; (5.) the improving of Husbandry; (6.) regulating the Prices of Commodities; (7.) moderating the Taxes, Duties, and the like.

The Prevention of Poverty by regulating Trade, &c.

Preventing a Surcharge of People.

10. In general, Care must be had that a Surcharge of Inhabitants, in Times of Peace, when none are cut off by the Sword, do not over-grow the Stock of the Kingdom, which should maintain them. Nor are the People in this View to be estimated by Number only; for a smaller Number, that consumes much, and gains little, wears out a State sooner than a greater that lives sparing, and lays up Money. And therefore an Over-proportion of Nobility and Gentry, soon impoverishes a State: so likewise does a numerous Clergy; for they bring nothing to the Stock. And the case is the same when more are bred Scholars, than the Civil Employes can maintain.

Trade consists in three things.

11. We should not omit, that as all Increase of publick Treasure must of Necessity arise from foreign Countries (for whatever is gain'd in one Place, is lost in another) there are but three things which one Nation can sell to another; viz. (1.) the *natural Commodity*; (2.) the *Manufacture*; and (3.) the *Carriage or Freight*. So that if these three Wheels go well, Riches will flow as in a Spring-tide. And it often happens, according to the Poet's Observation^g, that the Manufacturing and Carriage exceed the Price of the Material, and prove more enriching to a State: as we see by an eminent Example in the *Dutch*, who have the richest Mines above Ground of any Nation.

12. Above

^f See above, §. 6, 7.

^g *Materiam superabat Opus.*

12. Above all things, good Policy must be used, to prevent the Treas-
 ure of a Kingdom from getting into few Hands; otherwise a State may
 starve in the midst of Wealth: for Money is, like Manure, unfruitful if
 not spread. This is principally effected by suppressing, or at least re-
 straining those great Devourers, *Usury, Monopolies*, exorbitant Pasturage,
 and the like. *The Money of
a Kingdom
not to be en-
grossed.*

13. As for the removing of *Discontents*; at least the Dangers that might
 arise from them; we must observe, that as every State has two kinds of
 Subjects; viz. Nobles and Commons; if only one of these be discontent
 without the other, the Danger is not great; for the Vulgar are slow of
 Motion, unless excited by the Great: And again, the Great have little
 Strength, unless the People be disposed and ready to move of themselves.
 But the Danger is impending when the Great wait only for the *troubling of
the Waters*, amongst the Multitude; that they may declare themselves.
 The Poets feign, that the Gods conspired to bind *Jupiter*; which he be-
 ing apprized of, by the Counsel of *Pallas*, sent for *Briareus*, with his hun-
 dred Hands, to assist him. This Emblem doubtless admonishes Prin-
 ces how safe and prudent it is for them to secure the Good-will of the
 People.^b *The removing
of Discon-
tents.*

14. 'Tis a safe Way to indulge a moderate Liberty, for the *Discontent* to
 evaporate; provided it be not attended with Insolence and Audacity: for
 to turn the Humours back, and make the Wound bleed inwards, endan-
 gers malignant Ulcers, and pernicious Impostumations. *To give them
vent.*

15. For softening of enraged and malevolent Spirits, the Part of *Epi-
metheus* might well be transferr'd to *Prometheus*ⁱ; as there is no better Re-
 medy. *Epimetheus*, when he perceived Evils and Misfortunes fly out, at
 last clap'd on the Lid, and kept Hope in the bottom of the Box. Cer-
 tainly the political and artificial keeping up and cherishing of Hopes, and
 leading Men round from Hope to Hope, is one of the strongest Antidotes
 against the Poison of Discontent. And there is no surer Sign of a wise
 Government, and prudent Administration, than where Mens Hearts are
 detained with Hopes, whilst Satisfaction cannot be given: And again,
 where Matters are managed with such Foresight, that no Misfortune can
 happen so adverse as not to have its Out-let of Hope. And this is the
 less difficult to provide for, because *Factions*, as well as private Persons, are
 apt to flatter themselves; or at least, to glory in more than they be-
 lieve. *To feed Men
with Hopes.*

16. It is, indeed, a common, but excellent Caution, for preventing
 Danger from Discontent, that there be no fit Head or Leader whereto the
 Disaffected may resort, and form a Body under his Protection. I under-
 stand by a fit Head or Leader, a Person of Nobility and Character, ac-
 ceptable to the Malecontents; who turn their Eyes upon him, and believe
 him discontented in his own particular. Such Persons as these are either
 to *To suffer no
fit Head of
Faction.*

^b See Vol. I. the *Sapiensia Veterum*, Sect. 3. *passim*.

ⁱ See the Fable explained in the *Sapiensia Veterum*, Sect. 1.

to be won over, and reconciled to the State, in a firm and solid manner; or else to be opposed by others of the same Party, to divide the popular Esteem.

To sow Dis-
trust among
Factions.

17. It is generally conceived no bad Remedy, to divide and break Combinations and Factions against the State, by setting them at variance with each other; or at least by sowing Diffidence among them: for it would be extremely hard upon Governments, if the Disaffected to them should continue entire and united; whilst the Well-affected remain full of Diffentions.

Princes to be-
ware of short
poignant Sen-
tences.

18. It is observable, that ingenious and sharp Sayings falling inconsiderately from Princes, have sometimes given Fire to Seditions. *Cæsar* gave himself a fatal Wound by that Saying, *Scylla nescivit Literas, dictare non potuit**: For this single Sentence cut off all the Hope before entertain'd by the People, that he would in time resign the *Dictatorship*. *Galba* ruin'd himself by that Saying, *Legi a te militem, non emi*†. For hence the Soldiers despaired of the Donatives. And *Probus* had no better Success with that Expression, *Si vixero non opus erit amplius Romano Imperio militibus*‡. For this also was matter of Despair to the Soldiers; and there are many Instances of the like kind. Certainly it concerns Princes in tender Points, and ticklish times, to be cautious of what they say; especially in these short Sentences, which fly abroad like Darts; and are thought to proceed from their secret Intentions. But large Speeches are flatter things; and not so much regarded^k.

Kings to have
select military
Officers in
constant
waiting.

19. Lastly, against all Events, let Kings have constantly near them, certain Persons of approved military Valour, for the quelling of Seditions in their first Rise; otherwise the Courts of Princes are in more Confusion than is proper upon the first breaking out of Disturbances: and the State labours under that kind of Danger which *Tacitus* thus expresses. *Such was the general Disposition, that few durst attempt the heinous Crime; more wished it; but all permitted it to be committed*^l. But let such military Persons be of great Fidelity, and high Esteem, rather than factious or popular; and also have a good Understanding with the other Great Men of the State: or else the Remedy is worse than the Disease^m.

* That *Scylla* could not dictate for want of Learning.

† That he did not buy, but raise the Army.

‡ If I live, the Roman Empire will have no farther need of Armies.

^k See the Author's Collection of *Apophthegms*, Vol. I. Supplem. VI.

^l *Atque is habitus animorum fuit, ut pessimum Facinus auderens pauci, plures vellent, omnes paterentur.*

^m See more upon this general Subject in the *Sapientia Veterum*, Vol. I. Supplem. VII. Sect. 3. *passim*.

ESSAY XIV. Of UNITY in RELIGION.

1. **A**S Religion is the chief Bond of Society, 'tis proper that itself should be bound in the true Bonds of Unity and Charity. Quarrels and Diffentions about Religion were Evils unknown to the Heathens; their Religion consisting rather in Rites and Ceremonies, than in any fixed Belief and Confession. For it is easy to conjecture what kind of Faith they had, when the chief Doctors and Fathers of their Church were the Poets. But it is an Attribute of the true God, that he is a jealous God; and therefore his Worship admits of no Mixture or Partner. We will therefore here speak of the *Unity of the Church*; and consider, (1.) what are the Fruits thereof; (2.) what the Limits; and (3.) what the Means of procuring this *Unity*.

2. (1.) The principal *Fruits* of Unity (besides its being highly pleasing to God, which is first to be esteem'd) are two; the one regarding those without the Church, the other those within. For the former; 'tis certain that Heresies and Schisms are the greatest Scandals in the Church; even greater than Corruption of Manners: as in the natural Body, Wounds and Solutions of Continuity are worse in kind than corrupt Humours. Whence nothing so much deters some Men from coming into the Church, and drives others out of it, as the Breach of Unity: and therefore, when the times are come that some say, *Ecce in Deserto!* and others, *Ecce in Penetralibus!* that is, when some seek Christ in the Conventicles of Hereticks, and others in an outward Face of a Church, 'tis necessary to have this Voice continually sounding in Mens Ears, *Go not out.*

3. St. Paul, whose peculiar Province it was to take care of the Gentiles, or those without the Church, asks this Question: *If an Infidel, or unlearned Person, enters your Congregations, and hears you speak with different Tongues; will he not say you are mad?* And certainly, 'tis little better, when Atheists, and prophane Persons, see such great Contentions, and so many clashing Opinions in Religion. For this turns them from the Church; and makes them sit down in the Chair of the Scorners. It may seem too trifling for so serious an Essay, to mention the following Particular; but it admirably describes the Deformity of the Thing. A certain eminent Jester, in giving the Catalogue of a fabulous Library, puts down, among other Books, one with this Title: *The Morris-Dance of Hereticks*: for as every Morris-Dancer has his own peculiar ridiculous Motion, and deformed Gesture of Body; so has every Heretick his peculiar Humour and Deformity of Mind: which cannot fail of being ridiculed by Libertines, and depraved Politicians; who are apt to fall into a Contempt of holy Things.

4. As for the Fruit of Unity, redounding to those within the Church; it is in one Word, *Peace*; which contains innumerable Blessings: for it

Religion to be kept within the Bonds of Unity and Charity.

Two Fruits of Unity in Religion.

Heresies and Schisms the greatest Scandals in the Church.

Different Opinions of Hereticks occasion Religion to be ridiculed.

The Fruit of Unity within the Church.

establishes Faith, and kindles Charity : and the outward Peace of the Church distils by degrees into internal Peace of Conscience ; and turns the Labours of Controversy-Writers, into Books of Piety, and Devotion.

The Limits of Unity.

5. (2.) As for the Limits of Unity ; to place these justly, is of great Importance to the whole of Religion. There appear to be two Extremes in fixing them : For all mention of Peace is odious to Zealots. *Is it Peace, Jehu ? What hast thou to do with Peace ? Follow me :* as if Peace were nothing, but Party all. On the other hand, certain Persons, lukewarm in the Cause of Religion, like the *Laodiceans*, think to dress up agreeable Summaries of Religion, by going in a middle way, ingeniously accommodating Opinions, and acting as Reconcilers between God and Man. Both these Extremes are to be avoided ; and may be, by clearly understanding and distinguishing between those two Points of the Covenant of Christians, laid down by our Saviour himself, which at first sight seem to clash ; viz. *He that is not with us, is against us :* and again, *He that is not against us, is with us :* that is, if the truly essential and fundamental Points of Religion, were justly discerned and distinguished from those that are, not of Faith, but of probable Opinion, or pious Intention ; and design'd for the sake of Order, and the Government of the Church. This may appear trivial to many ; and a matter done already : but if done with less regard to Party, it would be more generally receiv'd.

Two kinds of Controversy to be avoided in Religion ; viz. the lighter,

6. Let Men beware of rending God's Church by two kinds of Controversies : The one, when the Point controverted is small and trifling, not deserving the Contention raised about it ; but inflamed merely by Opposition. For, as one of the Fathers elegantly observ'd, *the Coat of Christ was without Seam ; but the Church's Vesture of various Colours :* then adds, *Let the Variety of the Garment continue, and no Rent be made.* For Unity and Uniformity are widely different.

and the more subtle.

7. The other kind of Controversy is, when Subject has Weight, but is reduced to too great Subtilty and Obscurity ; so that it becomes a thing rather ingenious than substantial. A Man of Learning and Understanding may sometimes hear unskilful Persons differ about a Question, and see clearly that they think alike, and mean the same thing ; tho they themselves would never agree. And if this may sometimes happen between Man and Man, where there is so little Disparity of Judgment, is it not reasonable to believe that God, who searches and knows the Heart, clearly perceives that frail Men, in some of their Controversies, think alike, and graciously accepts of both ? The Nature and Character of such Controversies are admirably expressed by St. Paul, in his Admonition and Precept about them : *Avoid prophane and vain Babbings ; and Oppositions of Science, falsely so called.* Men imagine Oppositions, which in reality do not exist ; and couch them in new Terms, which they make so fixed and invariable, that tho the Meaning ought to govern the Term, the Term here governs the Meaningⁿ.

8. There

ⁿ See the *Novum Organum*, Part I. Sect. II.

8. There are also two *false Unities*; the one grounded upon an implicit Ignorance; for all Colours will agree in the dark: The other pieced up of Expositions, directly contrary, in fundamental Points. For Truth and Falshood are like the Iron and Clay in the Toes of the Image that *Nebuchadnezzar* saw in a Dream: they may cleave, but not incorporate.

Two false Unities.

9. (3.) For the *Means of procuring Unity*; let Men beware, whilst they secure and guard an Unity of Religion, they do not dissolve and demolish the Laws of Charity, and Society. There are but two Swords received amongst Christians, the *Spiritual* and *Temporal*; and both have their Place and Office in propagating and protecting the Christian Religion. But the third Sword, which is that of *Mahomet*, should never be taken up; that is, Religion must never be propagated by War; or the Consciences of Men forced by sanguinary Persecutions; unless in Cases of open Scandal, insolent Blasphemy, or Plots and Practices against the Civil State: much less to abet Seditions; spirit up Conspiracies and Rebellions; put the Sword into the Peoples Hands, and the like: all which manifestly tend to lessen the Authority, and subvert the Foundation of lawful Government, which is the *Ordinance of God*. For this is to break the first Table against the second; and to consider Christians, so as to forget they are Men.

The Means of procuring Unity.

10. *Lucretius*, placing before his Eyes *Agamemnon* sacrificing his own Daughter, exclaims, *Tantum Religio potuit suadere malorum**! But what would he have said, had he known of the Massacre in *France*; or the Powder-Plot in *England*? Surely he would then have been a greater *Atheist* and *Epicurean* than before! For as the temporal Sword is to be drawn with great Judgment and Circumspection in the Cause of Religion; 'tis monstrous to put it into the Peoples Hand. Let this be left to the *Anabaptists*, and other Furies. It was a great Blasphemy, when the Devil said, *I will ascend, and be like the most High*: but it is a greater to personate God, and bring him in saying, *I will descend, and be like the Prince of Darkness*: yet what difference is there betwixt this, and making the Cause of Religion descend headlong to the cruel and execrable Acts of murdering Princes, massacring People, and subverting States? Surely this is like bringing down the Holy Ghost in the Form of a Vulture or a Raven, instead of a Dove! or like hoisting the Flag of Pyrates and Assassins on board the Ship of the Church! It is therefore just, and required by the Necessity of the Times, that the Church by its Doctrine and Decrees; Princes by their Sword; and all Learning, both religious and moral, should endeavour, as by their *Mercury-Rod*, to charm down and confine to the infernal Regions, for ever, all Facts and Opinions tending to encourage and support these Practices; as in good measure has been already done. It were to be wished, that in Councils convened upon the Affair of Religion, this Admonition of the Apostle hung up to open View; *The Wrath of Man worketh not the*

Persecution, how to be opposed.

* Could e'er Religion lead to so much Ill!

Righteousness of God. And to say the Truth, it was excellently and prudently observed by a very wise Father of the Church; and spoke with great Sincerity and Ingenuity, that *they who advise the straining and forcing of Consciences, only cover their own Passions under that Pretence; and think their Interest concerned in the thing.*

* See the whole of this Subject farther prosecuted in the Author's Discourse upon promoting the Peace of the Church, *Supplem. XVII.*



SUP.

DISCOURSE
SUPPLEMENT XII.

A

DISCOURSE

OF

WAR:

On Occasion of a WAR with SPAIN.

A

DISCOURSE OF WAR, &c.

INTRODUCTION.

YOUR Highness^P has an imperial Name. It was a *Charles* that brought the Empire first into *France*; a *Charles* that brought it first into *Spain*; why should not *Great Britain* have its Turn? But to lay aside all that may favour of Fume or Fancy, and to speak Solids: *A War with Spain* is a great Work; it requires strong Materials and active Motions. He who says otherwise is zealous; but not according to Knowledge. Yet *Spain* is no such Giant: and he who thinks *Spain* a great Over-match for this Kingdom, assisted as it is, and may be, is no good Assay-master; but takes Greatness of Kingdoms according to their Bulk and Currency; and not according to their intrinsic Value. Altho, therefore, I had wholly sequestred my Thoughts from Civil Affairs; yet because 'tis a new Case, and concerns my Country infinitely, I obtain'd of my self to set down, out of long continued Experience in Business of State, and great Conversation in Books of Policy and History, what I thought pertinent to this Business; and in all Humility present it to your Highness; hoping that at least you will discern the Strength of my Affection, thro the Weakness of my Abilities: for the *Spaniard* has a good Proverb; *There is no Heat of Affection but is joined with some Idleness of Brain*.

^P This Piece was dedicated to Prince Charles in the Year 1624.

¹ *De Suavio si empre con la calentura.*

S E C T. I.

Of the just CAUSES of WAR.

The Requisites
of a War.

1. **T**O a War are required; (1.) a just Quarrel; (2.) sufficient Forces and Provisions; and (3.) a prudent Choice of the Design. So that I will first justify the Quarrel; secondly, balance the Forces; and lastly, propose a Variety of Designs for the Choice; but not advise the Choice; for that were unfit for a Writing of this Nature: nor is it a Subject within the Level of my Judgment; I being in effect, a Stranger to the present Occurrences.

Three
Grounds of
War.

2. Wars, where not ambitious and predatory, are *Suits of Appeal* to the Tribunal of God's Justice, when there are no Superiors on Earth to determine the Cause. And they are as Civil Pleas, *Plaints* or *Defences*. There are therefore three just Grounds of a War with Spain; one upon *Plaint*, and two upon *Defence*. Solomon says, *A Cord of three is not easily broken*: but especially when every one of these Lines will hold single by itself. They are these: (1.) the Recovery of the Palatinate; (2.) a just Fear of the Subversion of our Civil State; and (3.) a just Fear of the Subversion of our Church and Religion. For in the handling of the two last Grounds of War, I shall make it plain, that preventive Wars upon just Fears, are true Defensives; as well as upon actual Invasions: and again, that defensive Wars for Religion, are most just; tho' offensive Wars for Religion are seldom or never to be approved, unless they have some Mixture of Civil Titles. But all that I shall say in this Argument, will be like Thread in the Bottom, which with a good Needle may be flourished into large Works.

The first
Ground.

1. 3. For asserting the Justice of the Quarrel, the recovery of the Palatinate; I shall not go so high as to discuss the Right of the War of *Bohemia*; which if freed from Doubt on our Part, there is no Colour nor Shadow why the Palatinate should be retained; the ravishing whereof was a mere Excursion of the first Wrong, and a double Injustice. But I do not take my self to be so perfect in the Customs, Transactions and Privileges of that Kingdom of *Bohemia*, as to treat this Part properly: and will not offer at what I cannot master. Yet this I must say positively, and resolutely; that 'tis impossible an elective Monarchy should be so free and absolute as an hereditary; no more than 'tis possible for a Father to have so full Power and Interest in an adopted Son, as in a natural one: because a natural Obligation is stronger than a civil. And again, that received Maxim is almost unshaken and infallible; *There is nothing more agreeable to Nature, than that Things should be dissolved by the same means they were constituted.* So

* The third Part was not published.

So that if the Part of the People or State be somewhat in the Election, you cannot make them Cyphers in the Privation or Translation.

4. If it be said that this is a dangerous Opinion for the Pope, Emperor, and elective Kings; true, 'tis a dangerous, and ought to be a dangerous Opinion, to such personal Popes, Emperors, or elective Kings, as shall transcend their Limits, and become tyrannical: but it is a safe and sound Opinion for their Sees, Empires, and Kingdoms; and for themselves also, if they be wise: For *a Plenitude of Power is a Plenitude of Commotion*.^{The Judgment upon a War to be clear.} But the chief Reason why I do not search into this Point is, because I need it not. And in handling the Right of a War, I am unwilling to intermix doubtful Matter with that which is out of doubt. For as in capital Causes, where but one Man's Life is in question, the Evidence ought to be clear; so much the more in a Judgment upon a War, which is capital to thousands. I suppose therefore the worst; that the offensive War upon

Bohemia had been unjust; and then put the Case: which is no sooner put than resolved; if not enwrapped, but stated plainly and perspicuously.

5. 'Tis this. An offensive War is made, which is unjust in the Aggressor; the Prosecution and Course of the War, carries the Defendant to invade the ancient and undoubted Patrimony of the first Aggressor, who is now turned Defendant: shall he sit down, and not put himself in defence? Or if he be dispossessed, shall he not make a War for the Recovery? No Man is so poor of Judgment as to affirm it.^{The Case stated.}

6. The Castle of *Cadmus* was taken, and the City of *Thebes* itself invested by *Phœbidas* the *Lacedemonian*, insidiously, and in Violation of the League: the Process of this Action drew on a Re-surprize of the Castle by the *Thebans*, a Recovery of the Town, and a Current of the War, even to the Walls of *Sparta*. I demand, Was the Defence of the City of *Sparta*, and the Expulsion of the *Thebans* out of the ancient *Laconian* Territories unjust? The sharing of that part of the Dutchy of *Milan*, which lies upon the River of *Adda*, by the *Venetians*, upon Contract with the *French*, was an ambitious and unjust Purchase. This Wheel set on going, poured a War upon the *Venetians* with such a Tempest, that *Padua* and *Trevigi* were taken from them, and all their Dominions upon the Continent of *Italy* abandoned, and they confined within the Salt Waters.^{Exemplified.}

7. Will any Man say, that the memorable Recovery and Defence of *Padua*, when the Gentlemen of *Venice*, unused to Wars, but from the Love of their Country became brave and martial the first Day; and so likewise the re-obtaining of *Trevigi*, and the rest of their Dominions, was matter of scruple, whether just or no; because it arose from a Quarrel ill begun? The War of the Duke of *Urbino*, Nephew to Pope *Julius* the Second, when he made himself Head of the *Spanish* Mutineers, was as unjust as unjust could be; a Support of desperate Rebels; an Invasion of *St. Peter's* Patrimony; and what you will. The Course of this War fell upon the Loss of *Urbino* itself, which was the Duke's undoubted Right;

¹ *Plenitudo potestatis, est plenitudo tempestatis.*

yet in this Case no Penitentiety, tho he had enjoin'd him ever so strict Penance to expiate his first Offence, would have counsell'd him to have given over the Pursuit of his Right for *Urbis*; which afterwards he prosperously re-obtained, and has transmitted to his Family to this Day. Nothing more unjust than the Invasion of the *Spanish Armada* in eighty-eight upon our Seas; for our Land was Holy Land to them; they might not touch it: shall I say therefore, that the Defence of *Lisbon*, or *Gales*, afterwards, was unjust?

Wars are Revenges and Reparations.

8. There are thousands of Examples; but it were unnecessary to produce them in an undoubtful Case. The Reason is plain; Wars are Revenges and Reparations. But Revenges are not infinite; but according to the measure of the first Wrong. Therefore when a voluntary offensive War, by the Design or Fortune of the War, is turned to a necessary defensive War, the Scene of the Tragedy is changed; and it is a new Act to begin. For the particular Actions of War, tho complicated in Fact, are yet separate and distinct in Right; like *cross Suits* in *Civil Pleas*, which are sometimes both of them just. But this is so clear as to need no farther Proof. Yet if in things so clear, it were fit to speak of more or less clear in our present Cause; 'tis the more clear on our part, because the Possession of *Bohemia* is settled with the Emperor. For tho it be true, *that there is no compensation of Injuries*; yet were there somewhat more Colour to detain the *Palatinate*, as in the Nature of a Recovery, in Value or Compensation, if *Bohemia* had been lost, or were still the Seat of the War.

The Title of Proscription.

9. As for the Title of Proscription or Forfeiture, wherein the Emperor, upon the matter, has been Judge and Party, and justified himself; God forbid but that it should well endure an Appeal to a War. For certainly the Court of Heaven is as well a *Chancery* to save and debar Forfeitures, as a Court of *Common-Law* to decide Rights: and there would be Work enough in *Germany*, *Italy*, and other Parts, if imperial Forfeitures should go for good Titles. And thus much for the *first Ground of a War with Spain*, being in the Nature of a *Plaint* for the Recovery of the *Palatinate*; omitting here, what might be the Seed of a larger Discourse, and is verified by a Number of Examples; that whatever is gained by an abusive Treaty, ought to be restored to the full. We see the daily Experience of this in *Civil Pleas*; and the Images of great things are best seen contracted in small Glasses. Thus all *Pretorian Courts*, if any of the Parties be entertained or laid asleep, under Pretence of Arbitrement or Accord; and the other Party, during that time, cautelously gets the Start and Advantage at *Common-Law*, tho it be to Judgment and Execution; yet the *Pretorian Court* restores all things to their former State, without any respect to such Eviction or Dispossession.

The Seat of a War free after Indiction.

10. Lastly, let there be no Mistake; as if when I speak of a War for the Recovery of the *Palatinate*, I meant that it must be directly upon that Place: for look into the *Fœdal Law*, and all Examples, and it will be found, without Scruple, that after a Legation for Recovery, and a Refusal, and a Denunciation or Indiction of a War, the War is no more confined

SECT. I. A Discourse of WAR, &c.

171

confined to the Place of the Quarrel; but left at large, and to choice, as Opportunities and Advantages shall invite.

II. 11. To proceed, therefore, to the *second Ground* of a War with Spain; we have set it down to be, *a just Fear of the Subversion of our Civil State*. So that the War is not for the *Palatinate* only, but for *England, Scotland, Ireland*, our King, our Prince, our Nation, and all that we have. Where- in two things are to be proved: the one, that a just Fear, without an actual Invasion or Offence, is a sufficient Ground of War; and in the na- ture of a true Defensive: the other, that we have, with regard to Spain, Cause of just Fear. I say, just Fear: for as the Civilians well define, that the legal Fear, in private Causes, is *a just Fear in a courageous Man*; so in publick Causes, there is *a just Fear in a courageous Senate*; not out of Umbrages, light Jealousies, or Apprehensions afar off, but out of clear Fore-sight of imminent Danger.

The second Ground of War; viz. a just Fear.

12. As to the *former Proposition*, 'tis proper to hear what Time says. *Exemplified.* *Thucydides*, in his History of the great *Peloponnesian War*, sets down in plain Terms, that the true Cause of that War was the over-growing Greatness of the *Athenians*; and the Fear that the *Lacedemonians* stood in thereby: and doubts not to call it a Necessity imposed upon the *Lacedemonians* of a War; which are the Words of a mere Defensive: adding that the other Cases were but specious and popular. *The truest Cause of this War, tho' least voiced, I conceive to have been this; that the Athenians being grown great, to the terror of the Lacedemonians, imposed upon them a Necessity of a War: but the Causes voiced abroad were these, &c.*

13. *Sulpitius Galba*, the Consul, when he persuaded the *Romans* to a preventive War, with the later *Philip*, King of *Macedon*, in regard of the great Preparations which *Philip* had then on foot, and his Designs to ruin some of the Confederates of the *Romans*, confidently says, that they who took it for an offensive War, understood not the State of the Question. *Ye seem to me, O Romans, not to understand, that the Consultation before you is not, whether you shall have War or Peace; (for Philip will take care you shall be no Choosers, who prepares a mighty War both by Land and Sea;) but whether you shall transport the War into Macedon, or receive it into Italy.* *Antiochus*, when he incited *Prusias*, King of *Bithynia*, at that time in League with the *Romans*, to join with him in War against them, sets be- fore him a just Fear of the over-spreading Greatness of the *Romans*; com- paring it to a Fire that continually spread from Kingdom to Kingdom: saying that the *Romans* came to pull down all Kingdoms, and make the State of Rome an universal Monarchy; that *Philip* and *Nabis* were already ruin'd, and now was his turn to be assailed; so that as every State lay next to the other that was oppressed, so the Fire perpetually spread. Where it is to be well noted, that towards ambitious States, which aspire to great Monar- chies, and seek upon all Occasions to enlarge their Dominions, all par- ticular Fears grow and multiply from a View of the general Courses and

¹ *Iustus metus, qui cadit in constantem virum.*

² *Iustus metus, qui cadit in constantem Senatum.*

Practice of such States. Therefore in Deliberations of War against the Turk, it has been often, with great Judgment, maintain'd, that Christian Princes and States have always a sufficient Ground of an invasive War against the Enemy; not for the Cause of Religion, but upon a just Fear; as it is a fundamental Law, in the Turkish Empire, that they may without any other Provocation make War upon Christendom, for the Propagation of their Law; so that the Christians lie under a perpetual Dread of a War from them; and therefore they may at all times be upon the preventive.

Strengthened
by Authori-
ties.

14. Demosthenes derided Wars which are not preventive; comparing those that make them to Country-Fellows in a Fencing-School, who never parry till the Thrust is given. You Athenians make War with Philip, as ignorant Rusticks fence; for with them, he that gets a Hit, directly falls to guarding against another in the same place; and if hit again in a different place, thither his Guard goes likewise; but has neither the Skill nor Intention to foresee the Stroke, nor to guard against it:

15. Clinias the Candian, in Plato, speaks desperately and wildly, as if there were no such thing as Peace between Nations; but that every Nation only waits its Advantage to make War upon another. Yet in this extravagant Speech thus much may have a civil Construction; that every State ought to stand upon its Guard, and rather prevent, than be prevented. The Words are these; *What Men generally mean by Peace, is but a naked and empty Name: the Truth is, that all States are ever at a secret War.* I know that this is the Objection, not the Decision; and is afterwards confuted: yet it bears thus much of Truth, that if the general Malignity and Predisposition to War, which he falsely represents to be in all Nations, is produced and extended to a just Fear of being oppressed, then it is no more a true Peace, but the Name of a Peace.

By the Policy
of the wisest
Nations.

16. The Opinion of Iphicrates, the Athenian, demands not so much as a just Fear to a War; but rather approaches the Opinion of Clinias; as if there were among Nations a Brooding of a War; and that there is no sure League, but a want of Power to hurt. For in the Treaty of Peace with the Lacedemonians, he speaks plain, and tells them; *There could be no true and secure Peace, except the Lacedemonians yielded to those things, which, when granted, it would be no longer in their Power to hurt the Athenians, tho they would.* And to say truth, if we mark it well, this was in all History the main Piece of Wisdom, in strong and prudent Councils, to be on perpetual Watch, that the States about them should neither by Approach, nor by Increase of Dominion, nor by ruining Confederates, nor by blocking of Trade, nor by any the like means, have it in their Power to annoy the State; and whenever any such Cause did but appear, immediately to buy it out with War; and never to take up Peace at Credit; and upon Interest.

Princes.

17. 'Tis fresh in every ones Memory, how that Triumvirate of Kings, Henry VIII. of England, Francis I. of France, and Charles V. Emperor and King of Spain, were in their times so provident, as that scarce a Palm of Ground could be got by either, but the other two would do their best

to set the Balance of *Europe* upright again. And the like Diligence was used in the Age before, by that League (wherewith *Guicciardine* begins his History, and makes it, as it were, the Calendar of the good Days of *Italy*) which was contracted between *Ferdinando*, King of *Naples*, *Lorenzo* of *Medici*, Potentate of *Florence*, and *Lodovico Sforza*, Duke of *Milan*, design'd chiefly against the growing Power of the *Venetians*; yet so as the Confederates had a perpetual Eye upon one another, that none of them should overtop. And however some School-men, (otherwise revered Men, yet fitter to guide Pen-knives than Swords,) seem precisely to stand upon it, that every offensive War must be a Revenge, that presupposes a Precedent, Assault, or Injury; yet they do not descend to this Point, of a just Fear: nor are they of Authority to judge the Question against all the Precedents of Time. For certainly as long as Men are Men, the Sons of *Prometheus*, and not of *Epimetheus*^w, and as long as Reason is Reason, a just Fear will be a just Cause of a preventive War: but especially if it be part of the Case, that there is a Nation manifestly detected aspiring to Monarchy and new Acquisitions; then other States cannot be justly accused for not waiting the first Blow; or for not accepting *Polyphemus's* Courtesy to be the last that shall be eaten up.

18. Nay, in that Passage of *Plato*, above cited, a just Fear is justified for a Cause of an invasive War; tho the Fear proceed not from the Fault of the Foreign State to be attacked: for it is there insinuated, that if a State, thro the Distemper of its own Body, fears Seditions, and intestine Troubles, in its own Bowels, it may discharge its ill Humours, by a foreign War, for a Cure. And this kind of Cure was tender'd by *Jasper Coligni*, Admiral of *France*, to *Charles IX.* of that Kingdom; when by a vigorous and forcible Persuasion, he moved him to a War upon *Flanders*, for the better extinguishing the Civil Wars of *France*.

19. But neither was the Counsel prosperous, nor will I maintain the *Divines*. Position; for I never set *Politicks* against *Ethicks*; especially as true *Ethicks* are but like a Hand-maid to Divinity and Religion. *St. Thomas*, who had the largest Heart of all the School-Divines, bends his Style chiefly against the depraved Passions which reign in the making of Wars; speaking thus out of *St. Augustine*: *The Desire of Injuring, the Cruelty of Revenge, an implacable Spirit, the Savageness of Rebellion, the Thirst of Rule, &c. are all justly blamed in Wars.* And the same *St. Thomas*, in his own Text, defining the just Causes of a War, leaves it upon very general Terms thus: *A just Cause is required in War; and that the Invaded, thro some Fault, should have deserved the Invasion.* And so much for the first Proposition, that a just Fear is a just Cause of a War: and that a preventive War is a true defensive.

20. The second or minor Proposition was; that this Kingdom has a just Cause to fear an Overthrow from Spain. And here it is true, that Fears are ever seen in dimmer Lights than Facts: as on the other side, Fears are often represented in such an imaginary manner, as rather to dazzle Mens Eyes, than open them. I will therefore speak as the Subject requires; that is, probably,

That Britain has a just Cause of Fear from Spain.

^w See the Fable of *Prometheus*, in the *Sapientia Veterum*, Sect. I. Fab. 2.

probably, moderately, and briefly; without deducing these Fears to present Occurrences; but point only at general Grounds, leaving the rest to more secret Counsels.

The Increasing Power of Spain.

Is it nothing, that the Crown of Spain has enlarged its Bounds, within this last six-score Years, much more than the Ottomans? I speak not of Matches or Unions, but of Arms, Occupations, and Invasions. *Granada, Naples, Milan, Portugal, the East and West-Indies*; all these are actual Additions to that Crown. They had a mind to *French Britain*, and the lower part of *Picardy* and *Piedmont*; but they have let fall their Bit. They have, at this Day, such a hovering Possession of the *Valtoline*, as a *Hobby* has over a *Lark*; and the *Palatinate* is in their Talons: so that nothing is more manifest, than that Spain runs a Race of Empire; whilst all other States of Christendom in effect stand still. Look next into the Titles whereby they have acquired, and now hold these new Portions of their Crown; and you will find them of so many Varieties, and such Natures, as may, to speak with due respect, be easily minted; and such as can hardly at any time be wanting: and, therefore, so many new Conquests and Purchases; so many Strokes of the Alarum-Bell of Fear, and awaking to other Nations. And the Facility of the Titles, which hand over head have served their turn, rings the Peal so much the sharper and the louder.

The Eye of Spain upon England, from without.

21. Shall we descend from their general Disposition of enlarging their Dominions, to the particular Disposition and Eye of Appetite, which they have had towards us? They have now twice sought to possess themselves of this Kingdom of *England*; once by Marriage with *Queen Mary*, and again by Conquest in *eighty-eight*; when their Forces by Sea and Land were not inferior to those they have now. And at that time, the Counsel and Design of Spain was by many Advertisements reveal'd and laid open to be, that they found the War upon the *Low-Countries* so churlish and tedious, that they grew to a Resolution, that as long as *England* remain'd able to succour those Countries, they should but consume themselves in an endless War; and therefore there was no other way, but to invade and depress *England*, which was as a Back of Steel to the *Flemmings*. And who can warrant that the same Counsel and Design will not return again? So that we are in a strange Dilemma of Danger: for if we suffer the *Flemmings* to be ruined; they are our Out-work, and we shall remain naked and dismantled: if we succour them strongly, as we ought, and set them upon their Feet, and do not withal weaken Spain, we hazard changing the Scene of the War, and turning it upon *Ireland* or *England*: like Rheums and Defluxions, which, if you apply a strong Repercussive to the Part affected, and do not take away the Cause, will shift and soon fall upon another. They have also twice invaded *Ireland*; once under the Pope's Banner, when they were defeated by the Lord Gray: and afterwards in their own Name, when they were defeated by the Lord Mountjoy. And let this suffice for a Taste of their Disposition towards us.

22. But it will be said, this is an *Almanack* for the old Year: since *eighty-eight* all has been well; and that Spain has not invaded this Kingdom, tho highly

highly provoked by two several Invasions from us. 'Tis true; but then consider, that immediately after eighty-eight, they were long embroil'd in the Protection of the League of *France*, whereby they had their Hands full: and after being brought extreme low, by their vast and continual Enterprizes, they were forced to be quiet, that they might take Breath, and make Reparations upon their former Wastes. But now of late, things seem to come on apace to their former State; nay, with far greater Disadvantage to us: for now that they have almost continued, and, as it were, arch'd their Dominions from *Milan*, by the *Valtoline* and *Palatinate*, to the *Low-Countries*; we see how they thirst and pant after the utter Ruin of those States; having the *German* Nation almost in Contempt, and fearing little Opposition, except from *England*: whereby either we must suffer the *Dutch* to be ruined, to our manifest Prejudice; or put it to the hazard that *Spain* will throw at the fairest.

23. Neither is the Point of internal Danger, which grows upon us, to be forgot; viz. that the Papists in *England* are become more knotted, both in Dependence towards *Spain*, and among themselves, than they have been. Where again comes to be remember'd the Case of eighty-eight; for then also it appear'd by diverse secret Letters, that the Design of *Spain* was, for some Years before the Invasion, to prepare a Party in this Kingdom that should adhere to the Foreigner at his coming. And they bragged that they doubted not but to abuse, and lay asleep, the Queen and Council of *England*, as to their having any fear of the Papists here; for they knew, they said, the State would cast but an Eye, and look about to see, whether there were any eminent Head of that Party, under whom it might unite itself; and finding none worth the thinking on, rest secure, and take no Apprehension; whereas they meant, they said, to deal with the People, and Particulars, by Reconcilements, and Confessions, and secret Promises, and regarded not Heads of Party. Their Practices within.

24. And this was the true Reason, why after that the Seminaries began to blossom, and to make Missions into *England*, which was about the three and twentieth Year of Queen *Elizabeth*, (at which time also was the first Suspicion of the *Spanish* Invasion,) then, and not before, grew the sharp and severe Laws against the Papists. And therefore the Papists may do well to change their Thanks; and as they thank *Spain* for their Favours, thank them for their Dangers and Miseries, if they should fall upon them: for nothing ever made their Case so bad as the Hope of the Greatness of *Spain*; which adding Reason of State to Matter of Conscience and Religion, whet the Laws against them. And this Case also seems to return again, at this time; except the Clemency of his Majesty, and the State, super-abound; as, for my part, I wish it should: and that the Proceedings towards them may rather tend to Security, and Provision, and Point of State, than to Persecution for Religion. But to conclude; these things, briefly touched, may serve as in a Subject conjectural and future, to represent how just a Cause of Fear this Kingdom may have of *Spain*: omitting, as was said before, all present and more secret Occurrences.

25. The

The third
Ground of the
War.

III. 25. The *third Ground of a War with Spain*, I have set down to be, a just Fear of the Subversion of our Church and Religion. This Point needs not to be long dwelt upon: For if the War be defensive, as I have prov'd it to be, no Man will doubt, that a defensive War against a Foreigner for Religion is lawful. Of an offensive War, there is more Dispute. But no Man will doubt, if the Pope, or King of *Spain*, should demand us to forsake our Religion upon Pain of a War, whether it were as unjust a Demand, as the *Persians* made to the *Grecians* of Land and Water; or the *Ammonites* to the *Israelites* of their right Eyes. And we see all the Heathens styled their defensive Wars, *pro aris & focis*; placing their Altars before their Hearths. So that 'tis in vain to speak farther of this. Only we must say, that the Fear of the Subversion of our Religion from *Spain*, is the more just, because all other Catholick Princes and States content themselves to maintain their Religion within their own Dominions, and meddle not with the Subjects of other States; whereas the Practice of *Spain* has been, both in *Charles* the Fifth's time, and in the time of the League in *France*, by War, and now with us by Conditions of Treaty, to intermeddle with foreign States; and to declare themselves Protectors General of the Catholics, all over the World. As if the Crown of *Spain* intended to plant the Pope's Law by Arms; as the *Ottomans* do the Law of *Mahomet*. And thus much concerning the first main Point, of justifying the Quarrel.

S E C T. II.

Of the Force requisite to a WAR.

The Forces
ballanced be-
twixt Spain
and Britain.

1. **T**HE second main Part of what I propose, is to *balance the Forces between Spain and us*. And this also tends to no more than what the King may do. For what he may do, is of two kinds: what he may do as *just*; and what he may do as *possible*. Of the one I have already spoke; and of the other I am now to speak.

Spain not an
Over-match
for England.

2. I said *Spain* was no such Giant: and yet if he were a Giant, it will be but as between *David* and *Goliath*; for *God is on our side*. But to leave all Arguments that are supernatural, and to speak in a human and politic Sense, I am led to think that *Spain* is no Over-match for *England*, by that which leads all Men; viz. Experience and Reason. And with Experience I will begin; for there begins all Reason.

Shewn by Ex-
perience.

3. Is it Fortune, shall we think, that in all Actions of War or Arms, great and small, which have happened these many Years, ever since *Spain* and *England* have had Debates, that the *English* upon all Encounters have perpetually come off with Honour, and the better? 'Tis not Fortune sure; she is not so constant. There is somewhat in the Nation, and natural Courage of the People, or some such thing. I will make a brief List of the Particulars

lars themselves, in the strict Way of historical Truth. This were a fit Speech, you will say, for a General at the Head of an Army, going to join Battel: yes; and it is no less fit to be spoke at the Head of a Council, upon a Deliberation of Entering into a War. Neither do I speak this to disparage the *Spanish* Nation, which I take to be of the best Soldiers in *Europe*: But that redounds to our Honour, if we still have had the better of them.

4. In the Year 1578, was that famous *Lammas-day* which buried the Reputation of *Don John* of *Austria*; himself not surviving long after, *Rimenant*, *Don John*, being superior in Forces, assisted by the Prince of *Parma*, *Mon-dragon*, *Mansell*, and other the best Commanders of *Spain*, confident of Victory, charged the Army of the States near *Rimenant*, bravely and furiously at the first; but after a Fight maintain'd for the Space of a whole Day, he was repulsed, and forced to retreat, with great Slaughter of his Men; whereby the Course of his farther Enterprizes was wholly stopped: and this chiefly by the Courage and Virtue of the *English* and *Scotish* Troops, under the Conduct of Sir *John Norris*, and Sir *Robert Stuart*. Which Troops came to the Army but the Day before; harrassed with a long and wearisome March: when the Soldiers, more sensible of a little Heat of the Sun, than of any cold Fear of Death, threw aside their Armour and fought in their Shirts. And as it was generally conceived, had it not been that the Count of *Bossu* was slack in charging the *Spaniards* upon their Retreat, this Fight had ended in an absolute Defeat. But it was enough to chastize *Don John* for his insidious Treaty of Peace, wherewith he had abused the States at his first coming. And the Fortune of the Day may be the better ascribed to the Service of the *English* and *Scotch*, by comparing this Charge near *Rimenant*, where the *English* and *Scotch* were in great Numbers, with the like Charge given by *Don John*, half a Year before at *Gemblours*, where the Success was contrary: there being at that time in the Army but a Handful of *English* and *Scotch*; and they put into Confusion by their own Horse.

5. The first Dart of War, which was thrown from *Spain* or *Rome*, upon the Kingdom of *Ireland*, was in the Year 1580; for the Design of *Stukely* blew over into *Africk*; and the Attempt of *Sanders* and *Fitz-Maurice* had a Spice of Madness. In that Year *Ireland* was invaded by *Spanish* and *Italian* Forces, under the Pope's Banner, and the Conduct of *San Josephe*, to the Number of 700, or more, who landed at *Smerwick* in *Kerry*. A poor Number it was to conquer *Ireland* to the Pope's Use; for their Design was no less: but withal they brought Arms for 5000 Men above their own Number, intending to arm so many of the Rebels of *Ireland*. And their Purpose was, to fortify themselves in some strong Place of the wild and desolate Country, and there to nestle till greater Succours came; they being hasten'd to this Enterprize upon a special Reason of State, not proper to the Enterprize itself; which was by the Invasion of *Ireland*, and the Noise thereof, to trouble the Council of *England*; and to make a Diversion of certain Aids, that were then preparing from hence for the *Low Countries*. They chose a Place where they erected a Fort, which they called *Fort del Or*; and

from thence they bolted like Beasts of the Forest, sometimes into the Woods and Fastnesses; and sometimes back again to their Den. Soon after, Siege was laid to the Fort, by the Lord *Gray*, then Deputy, with a smaller Number than those within the Fort; adventurously indeed: but haste was made to attack them before the Rebels came in to them. After a Siege of four Days only, and two or three Sallies, with loss on their part, they who should have made good the Fort for some Months, till now Succours came from *Spain*, or at least from the Rebels of *Ireland*, yielded themselves without Conditions. And as there were not in the *English* Army enough to keep every Man a Prisoner; and as also the Deputy expected instantly to be attacked by the Rebels; and again, as there were no Barks to put them into, and send them away by Sea; they were all put to the Sword: with which Queen *Elizabeth* was afterwards much displeased.

The Retreat
of Gaunt, in
1582.

6. In the Year 1582, was that memorable Retreat of *Gaunt*; than which there has not been an Exploit of War more celebrated. For in the true Judgment of military Men, honourable Retreats are no way inferior to brave Charges; as having less of Fortune; more of Discipline; and as much of Valour. There were to the Number of three hundred Horse, and as many thousand Foot, *English*, commanded by Sir *John Norris*, charged by the Prince of *Parma*, coming upon them with seven thousand Horse; besides that the whole Army of the *Spaniards* was ready to march. Nevertheless, Sir *John Norris* maintained a Retreat without Disarray, for the space of some Miles, to the City of *Gaunt*, with less Loss of Men than the Enemy: the Duke of *Anjou*, and the Prince of *Orange*, beholding this noble Action from the Walls of *Gaunt*, as in a Theatre, with great Admiration.

The Taking of
Carthagea,
in 1585.

7. In the Year 1585, followed the prosperous Expedition of *Drake* and *Carlile* into the *West-Indies*; in which I set aside the taking of *S. Jago* and *S. Domingo* in *Hispaniola*, as Surprizes rather than Encounters. But that of *Carthagea*, where the *Spaniards* had warning of our coming, and had put themselves in their full Strength, was one of the hottest Services, and most dangerous Assaults, that has been known. For the Access of the Town was only by a Neck of Land, between the Sea on the one part, and the Harbour-Water, or inner Sea, on the other; fortified clear over with a strong Rampart and Barricado; so that upon the Ascent of our Men, they had both great Ordnance and small Shot, that thundered and shower'd upon them from the Rampart in the Front, and from the Gallies that lay at Sea in Flank. And yet they forced the Passage, and won the Town; tho likewise very well mann'd.

Sir Francis
Drake's Ex-
pedition a-
gainst the
Spaniards, in
1587.

8. As to the Expedition of Sir *Francis Drake* in the Year 1587, for destroying of the *Spanish* Shipping and Provision upon their own Coast; as I cannot say that there intervened in that Enterprize any sharp Fight, or Encounter; so nevertheless it strangely discovered, either that *Spain* is very weak at home, or very slow to move; when they suffered a small Fleet of *English* to make an hostile Invasion, or Incurfion, upon their Havens and Roads, from *Cadiz* to *Capa Sacra*, and thence to *Cascais*; and to fire,

fire, sink, and carry away at the least, ten thousand Ton of their great Shipping, besides fifty or sixty of their smaller Vessels; and that in the Sight, and under the Command of their Forts, and almost under the Eye of their great Admiral, the best Commander of *Spain* by Sea, the Marquis *de Santa Cruz*; without ever disputing it by any Fight of importance. I remember *Drake*, in the vaunting Stile of a Soldier, would call this Enterprize, the Singeing of the King of *Spain's* Beard.

9. The Enterprize of eighty-eight deserves to be dwelt upon a little more fully, as being a Miracle of Time. There was armed from *Spain* in the Year 1588, the greatest Navy that ever floated upon the Sea: for tho there have been far greater Fleets in number; yet for the Bulk and Building of the Ships, with the Furniture of great Ordnance and Provisions, there never was the like. The Design was not to make an Invasion only, but an utter Conquest of this Kingdom. The Number of Vessels was one hundred and thirty; whereof Gallies and Galleons seventy-two; the rest stately Ships, like Floating-Castles, mann'd with thirty thousand Soldiers and Mariners. This Navy was the Preparation of five whole Years at the least. It repos'd itself also upon divine Assistance; for it received special Blessing from Pope *Sixtus*; and was design'd as an Apostolical Mission for reducing this Kingdom to the Obedience of the See of *Rome*. And in farther token of this holy Warfare, there were among the rest of these Ships, twelve, called by the Names of the twelve Apostles. But it was truly conceived, that this Kingdom of *England* could never be overwhelm'd, except the Land-waters came into the Sea-tides. Whence there was also in Readiness in *Flanders*, a mighty strong Army of Land Forces, to the Number of fifty thousand veteran Soldiers, under the Conduct of the Duke of *Parma*, the best Commander, next the *French* King *Henry IV.* of his time. These were design'd to join with the Forces at Sea; there being prepared a Number of flat-bottom'd Boats to transport the Land-Forces, under the Wing and Convoy of the great Navy: For they question'd not, but the Navy should be absolute Master of the Seas. Against these Forces were prepared on our part, to the Number of near one hundred Ships; not so great of Bulk indeed, but of a more nimble Motion, and more serviceable; besides a less Fleet of thirty Ships, for the Custody of the narrow Seas. There were also in Readiness at Land, two Armies; besides other Forces, to the Number of ten thousand, dispersed among the Coast-Towns in the Southern Parts. The two Armies were appointed; one of them consisting of twenty-five thousand Horse and Foot, for repulsing the Enemy at their landing; and the other, of twenty-five thousand, for Safeguard and Attendance about the Court and Queen's Person. There were also other dormant Musters of Soldiers throughout all the Parts of the Kingdom, that were put in Readiness, but not drawn together. The two Armies were assign'd to the leading of two Generals, noble Persons, but both of them rather Courtiers, and assurd to the State, than martial Men; yet lined and assisted with subordinate Commanders of great Experience and Valour.

The Spanish Armada in 1588.

Sail from the
Groyne.

10. The *Spanish* Navy set sail from the *Groyne* in *May*, and was dispersed and driven back by Weather. Our Fleet set out somewhat later from *Plymouth*, and bore up towards the Coast of *Spain*, to have engaged the *Spanish* Navy; but partly by reason of contrary Winds, partly upon Advertisement that the *Spaniards* were gone back, and upon some Suspicion also that they might pass by, towards the Coast of *England*, whilst we were seeking them afar off; it returned to *Plymouth* about the middle of *July*. At that time came more confident Advice, tho false, not only to the Lord Admiral, but to the Court, that the *Spaniards* could not possibly come forward that Year: whereupon our Fleet was upon the Point of disbanding, and many of our Men gone ashore: at which very time the invincible *Armada*, for so it was called, in a *Spanish* Ostentation throughout *Europe*, was discovered upon the Western Coast. It was a kind of Surprise; because our Ships were ready to separate. Nevertheless the Admiral, with such Ships only as could be got ready, made out towards them; but so that of a hundred Ships, there came scarce thirty to work. However, with these, and such as came daily in, we set upon them, and gave them the Chase. But the *Spaniards* for want of Courage, which they called want of Commission, declined the Fight; casting themselves continually into Rounds, their strongest Ships walling in the rest; and in that manner they made a flying Retreat towards *Calais*. For five or six Days we pursued them close, fought with them continually, made great Slaughter of their Men, took two of their great Ships, and gave diverse others of their Ships their Death's Wounds, whereof they soon after sunk and perished; and, in a word, distressed them almost in the Nature of a Defeat: ourselves in the mean time receiving little or no Hurt.

Anchor at
Calais.

11. Near *Calais* the *Spaniards* anchored; expecting their Land Forces, which came not. It was afterwards alledged, that the Duke of *Parma* artificially delay'd his coming: but this was a Pretence, given out by the *Spaniards*; partly upon a *Spanish* Envy against that Duke, being an *Italian*, and his Son a Competitor to *Portugal*; but chiefly to save the monstrous Scorn and Disreputation, which they and their Nation received by the Success of this Enterprize. Therefore their Colours and Excuses were, that their General by Sea had a limited Commission, not to fight till the Land Forces were come in: and that the Duke of *Parma* had particular Reaches and Ends of his own, under hand, to cross the Design. But it was both a strange Commission, and a strange Obedience to a Commission, for Men in the midst of their own Blood, and being so furiously attacked, to hold their Hands, contrary to the Laws of Nature, and Necessity. And as for the Duke of *Parma*, he was reasonably well tempted to be true to that Enterprize, by no less Promise than to be made a feudatory, or beneficiary King of *England*; under the Seignory, in chief, of the Pope, and the Protection of the King of *Spain*. Besides, it appeared that the Duke of *Parma* held his Place long after in the Favour and Trust of the King of *Spain*, by the great Employments and Services that he performed in *France*. And again, 'tis manifest that the Duke did his best

to come down, and to put to Sea. The Truth was, that the *Spanish* Navy, upon those Proofs of Fight which they had with the *English*, finding how much Damage they had received, and how little Hurt they did, by reason of the Activity and low Building of our Ships, and the Skill of our Sea-men; and being also commanded by a General of small Courage and Experience; and having lost at the first, two of their bravest Commanders at Sea, *Petro de Valdez*, and *Michael de Oquenda*; durst not venture a Sea-fight, but rested wholly upon the Land Enterprize.

12. On the other side, the transporting of the Land Forces failed in the very Foundation: for whereas the Council of *Spain* made full Account, that their Navy should be Master of the Sea; and therefore able to guard and protect the Vessels of Transportation; when it fell out, to the contrary, that the great Navy was distressed, and had enough to do to save itself; and again, that the *Hollanders* imprisoned their Land Forces with a brave Fleet of thirty Sail, excellently well appointed: Things, I say, being in this State; it came to pass, that the Duke of *Parma* must have flown, if he would have come into *England*; for he could get neither Bark nor Mariner to put to Sea. Yet it is certain, that the Duke looked still for the Return of the *Armada*; even at that time when they were wandering upon the Northern Seas.

*Fail of their
Land-Forces.*

13. But the *Armada*, which we left anchor'd at *Calais*, was from thence, as Sir *Walter Rawleigh* used prettily to say, suddenly driven away with Squibs; for it was no more than a Stratagem of Fire-boats; manless, and sent upon them by the favour of the Wind in the Night-time, that put them into such Terror, that they cut their Cables, and left their Anchors behind. After they had hovered some two or three Days about *Graveling*, they were there again beaten in a great Fight; when our second Fleet, which kept the narrow Seas, was come in and join'd to our main Fleet. Then the *Spaniards* falling into farther Terror, and finding also diverse of their Ships every Day to sink, lost all Courage; and instead of coming up into the *Thames* for *London*, as their Design was, fled on towards the North, to seek their Fortunes; being still chased by the *English* Navy at their Heels, till we were obliged to give them over for want of Powder.

*Chased from
Graveling.*

14. The Breath of *Scotland* the *Spaniards* could not endure; neither durst they as Invaders land in *Ireland*; but only ennobled some of the Coasts thereof with Shipwrecks. And so making Northward aloof, as long as they had any Suspicion of being pursued; at last, when they were out of reach, they turned, and crossed the Ocean to *Spain*; having lost fourscore of their Ships, and the greater part of their Men. And this was the End of that Sea-Giant, the invincible *Armada*: which having not so much as fired a Cottage of ours at Land, nor taken a Cock-boat of ours at Sea, wandered thro the Wilderness of the Northern Seas; and according to the Curse in Scripture, came out against us one way, and fled from us seven ways: Serving only to make good the Judgment of an Astrologer, long before given, *Octuagesimus octavus mirabilis annus*: or rather, to make good, even to the Astonishment of all Posterity, the wonderful

Their Defeat.

Spain invaded by the English in 1589.

derful Judgments of God, commonly poured down upon vast and proud Aspirings.

15. In the Year ensuing, viz. 1589, we gave the *Spaniards* no Breath, but turned Challengers; and invaded the Main of *Spain*. In which Enterprize, altho we failed of our End, which was to settle *Don Antonio* in the Kingdom of *Portugal*; yet a Man shall hardly meet with an Action that better reveals the great Secret of the Power of *Spain*: which well sought into, will be found rather to consist in a veteran Army ever on Foot, in one part or other of *Christendom*, than in the Strength of their Dominions and Provinces. For what can be more strange, or more to the Discredit of the Power of the *Spaniard* upon the Continent, than that with an Army of eleven thousand *English* Land Soldiers, and a Fleet of twenty-six Ships of War, besides some weak Vessels for Transportation, we should within the compass of two Months, have won one Town of Importance by *Scalado*; battered and assaulted another; overthrown great Forces in the Field, and this under the Disadvantage of a Bridge strongly barricadoed; landed our Army in three several Parts of the Kingdom; marched seven Days in the Heart of the Country; lodged three Nights in the Suburbs of the principal City; beat their Forces into the Gates thereof; possessed two Frontier Forts; and came off, after all, with small Loss of Men, otherwise than by Sickness? And it was verily thought, that had it not been for four great Disfavours of the Voyage; viz. the failing in sundry Provisions that were promised, especially Cannon for Battery; the vain Hopes of *Don Antonio*, concerning the People of the Country coming in to his Aid; the Disappointment of the Fleet, that was directed to come up the River of *Lisbon*; and the Diseases which spread in the Army, by reason of the Heat of the Season, and of the Soldiers Irregularity in Diet; the Enterprize had succeeded, and *Lisbon* been carried. But however, it gives Proof to the World, that an Invasion of a few *English* upon *Spain*, may have a just Hope of Victory, at least of Passport to depart safely.

The Fight of Sir Richard Grenvil, Commander of the Revenge, in 1591.

16. In the Year 1591, was that memorable Fight of an *English* Ship, called the *Revenge*, under the Command of Sir *Richard Grenvil*; memorable even beyond Credit, or to the height of some heroical Fable: and tho it were a Defeat, yet it exceeded a Victory; being like the Act of *Sampson*, that killed more Men at his Death, than in all the time of his Life. This Ship, for the space of fifteen Hours, stood like a Stag among Hounds at Bay; and was sieged and fought with, in turn, by fifteen great Ships of *Spain*, part of a Navy of fifty-five Ships in all; the rest, like Abettors, looking on afar off. And among the fifteen Ships that fought, the great *S. Philippo* was one; a Ship of fifteen hundred Ton, Prince of the twelve *Sea Apostles*, but glad to be shifted off from the *Revenge*. This brave Ship, the *Revenge*, being mann'd only with two hundred Soldiers and Mariners, whereof eighty lay sick, yet after a Fight maintained so many Hours, and two Ships of the Enemy sunk by her side, besides many others torn and battered, and great Slaughter of Men, never came to be enter'd, but was taken by Composition; the Enemies themselves having in Admiration

miration the Virtue of the Commander, and the whole Tragedy of that Ship.

17. In the Year 1596, was the second Invasion that we made upon the main Territories of *Spain*; prosperously atchieved by that worthy and famous *Robert Earl of Essex*, in consort with the noble Earl of *Nottingham*, then Admiral. This Expedition was like Lightning; for in the space of fourteen Hours the King of *Spain's* Navy was destroy'd, and the Town of *Cadiz* taken. The Navy was no less than fifty tall Ships; besides twenty Gallies to attend them. The Ships were presently beaten, and put to flight, with such Terror that the *Spaniards* in the end were their own Executioners; and fired them all with their own Hands. The Gallies, by the benefit of the Shores and Shallows, got away. The Town was a fair, strong, rich and well built City; famous in Antiquity, and now most spoken of for this Disaster. It was mann'd with four thousand Foot, and some four hundred Horse. It was sacked and burned; tho great Clemency was used towards the Inhabitants. But what is no less strange than the sudden Victory, was the great Patience of the *Spaniards*; who tho we stay'd upon the Place diverse Days, yet never offered us any Play then; nor ever put us in Suit by any Action of Revenge, or Reparation at any time after.

Cadiz taken by the English in 1596.

18. In the Year 1600, was the Battel of *Newport*, in the *Low-Countries*, where the Armies of the Arch-Duke and the States, tried it out by a just Contest. This was the only Battel fought in those Countries for many Years before. Battels in the *French Wars* have been frequent, but in the Wars of *Flanders* rare; as the Nature of a Defensive War requires. The Forces of both Armies were not much unequal: that of the States somewhat exceeded in number; but this again was compensated by the quality of the Soldiers: for those of the *Spaniard* were of the Flower of all their Forces. The Arch-Duke was the Assailant and Preventer; and reaped the Fruit of his Diligence and Celerity. For charging certain Companies of *Scotish* Men, to the Number of eight hundred, sent to make good a Pass, and thereby severed from the Body of the Army; he cut them all in Pieces: for they, like a brave Infantry, when they could make no honourable Retreat, and would take no dishonourable Flight, made good the Place with their Lives. This Entrance of the Battel whet the Courage of the *Spaniards*, tho it blunted their Swords; so that they came proudly on, confident to defeat the whole Army. The Encounter of the main Battel which followed, was a just Encounter; not hastening to a sudden Rout; nor the Fortune of the Day resting upon a few former Ranks; but fought out to the Proof by several Squadrons; and not without Variety of Successes; *hæret pede pes, densusque viro vir*. There fell out an Error in the Dutch Army, by the over hasty Medley of some of their Men with the Enemy's; which hinder'd the playing of their great Ordnance; but the End was, that the *Spaniards* were utterly defeated; and near five thousand of their Men in the Fight, and in the Execution, slain and taken; among whom were many of the principal Persons of their Army. The Honour of

The Battel of Newport, in 1600.

of the Day was, both by the Enemy and the *Dutch* themselves, ascribed to the *English*; of whom Sir *Francis Vere*, in a private Commentary which he wrote of that Service, testifies, that of fifteen hundred in Number; for they were no more; eight hundred were slain in the Field: and what is almost incredible, in a Day of Victory, of the remaining seven hundred, two Men only came off unhurt. Sir *Francis Vere* himself had the principal Honour of the Service; to whom the Prince of *Orange* transmitted the Direction of the Army for that Day; and in the next Place Sir *Horace Vere*, his Brother, who was the Principal in the active Part. The Service also of Sir *Edward Cecil*, Sir *John Ogle*, and diverse other brave Gentlemen, was eminent.

The Battel of
Kingfale, in
1601.

19. In the Year 1601, followed the Battel of *Kingfale* in *Ireland*. By this *Spanish* Invasion of *Ireland*, which was in *September* that Year, one may guess how long a *Spaniard* will live on *Irish* Ground; which is four Months at the most. For they had all the Advantages in the World; and no Man would have thought, considering the small Forces employed against them, that they could have been driven out soon. They obtain'd, without Resistance, in the End of *September*, the Town of *Kingfale*; a small Garrison, of one hundred and fifty *English*, leaving the Town upon the *Spaniards* Approach; and the Townsmen receiving the Foreigners as Friends. The Number of *Spaniards* that put themselves into *Kingfale*, was two thousand veteran Soldiers; under the Command of *Don John d' Aquila*, a Man of good Valour. The Town was strong of itself; neither wanted there any Industry to fortify it on all Parts, and make it tenable, according to the Skill and Discipline of the *Spanish* Fortification. At that time the Rebels were proud, being encouraged upon former Successes; for the then Deputy, the Lord *Mounjoy*, and Sir *George Carew*, President of *Munster*, had performed diverse good Services to their Prejudice; yet the Defeat they had given the *English* at *Black-water*, not long before, and the Treaty with the Earl of *Essex*, was yet fresh in their Memory.

20. The Deputy lost no time, but made haste to have recovered the Town before new Succours came, and sat down before it in *October*; and laid siege to it three Winter Months or more: during which time, Sallies were made by the *Spaniards*; but they were beat back with Loss. In *January* came fresh Succours from *Spain*; to the number of two thousand more, under the Conduct of *Alonzo d' Ocampo*. Upon the Comforts of these Succours, *Tirone* and *Odonnell* drew up their Forces together, to the number of seven thousand, besides the *Spanish* Regiments, and took the Field; resolved to relieve the Town, and to give the *English* Battel. Here then was the Case: an Army of *English*, of some six thousand, wasted and tired with a long Winter's Siege, engaged in the midst, between an Army of a greater Number than themselves, fresh and in Vigour, on the one side; and a Town strong in Fortification, and strong in Men, on the other. But what was the Event? This, that after the *Irish* and *Spanish* Forces had come on, and shewed themselves in some Bravery; they were content to give the *English* the Honour of charging them first: and when

it came to the Charge, there appeared no difference between the Valour of the *Irish* Rebels, and the *Spaniards*; but that the one ran away before they were charged, and the other soon after.

21. Again, the *Spaniards* that were in the Town had so well remember'd their Losses, in their former Sallies, that the Confidence of an Army, which came for their Deliverance, could not draw them out again. There succeeded an absolute Victory for the *English*, with the Slaughter of above two thousand of the Enemy; the taking of nine Ensigns, whereof six were *Spanish*; and the taking of the *Spanish* General, *d'Ocampo*, Prisoner: and this with the Loss of so few of the *English* as is scarce credible; being, as has been rather confidently than credibly reported, but of one Man, the Cornet of Sir *Richard Greame*; tho not a few hurt. There followed immediately after the Defeat, a Surrender of the Town by Capitulation; and not only so, but an avoiding, by express Articles of Treaty, of all other *Spanish* Forces throughout *Ireland*, from the Places and Nests where they had settled themselves in greater Strength than at *King-sale*; which were *Castlehaven*, *Baltimore*, and *Beerehaven*. Indeed they went away with sound of Trumpet; for they did nothing but publish and trumpet all the Reproaches they could devise, against the *Irish* Land and Nation; insomuch as *D'Aquila* said in open Treaty, that when the Devil upon the Mount shewed *Christ* all the Kingdoms of the Earth, and the Glory of them, he did not doubt but the Devil left out *Ireland*, and kept it for himself.

22. 'Tis true, that among the late Adventures, the Voyage of Sir *Francis Drake*, and Sir *John Hawkins*, to the *West-Indies*, was unfortunate; yet so as not to break, or cross the Assertion of our having had the better of the *Spaniards* in all Fights of late. For the Disaster of that Voyage was caused chiefly by Sickness; as may well appear by the Death of both the Generals, Sir *Francis Drake*, and Sir *John Hawkins*, of the same Sickness among the rest. The Land Enterprize of *Panama*, was an ill-measured and immature Counsel; as grounded upon a false Account, that the Passages towards *Panama* were no better fortified than *Drake* had left them. And yet it redounded not to any Fight of Importance, but to a Retreat, after the *English* had proved the Strength of their first Fort; and had notice of the two other Forts beyond, by which they were to have marched. 'Tis true, that in the Return of the *English* Fleet, they were set upon by *Avellaneda*, Admiral of twenty great *Spanish* Ships; our Fleet being but fourteen, full of sick Men, deprived of their two Generals by Sea, and having no Pretence, but to sail homewards: and yet the *Spaniards* did but salute them, about the Cape de los *Corientes*, with some small offer of Fight, and came off with Loss; altho it was such a new thing for the *Spaniards* to receive so little Hurt, upon dealing with the *English*, that *Avellaneda* made great Brags of it, for no other matter than the waiting upon the *English* afar off, from Cape de los *Corientes* to Cape *Antonio*; which nevertheless, in the Language of a Soldier, and of a *Spaniard*, he called a Chace.

23. But before I proceed farther, 'tis good to answer an Objection, which, if not removed, the Conclusion of Experience from Time past, to

The State of
Spain compar-
ed in 1588
to and 1624.

to the Time present, will not be found and perfect. For it will be said, that in the former Times, whereof we have spoke, *Spain* was not so mighty as it is now; and *England*, on the other side, more powerful. Therefore let us compare, with Indifference, these Disparities of Times, and we shall plainly perceive that they make for the Advantage of *England* at present. And, the less to wander in Generalities, we will fix the Comparison to precise Times; comparing the State of *Spain* and *England*, in the Year eighty-eight, with this present Year 1624.

24. *First*, therefore, it is certain, that *Spain* has not now a Foot of Ground, in quiet Possession, more than it had in eighty-eight. As for the *Valtoline*, and the *Palatinate*, it is a certain Maxim in State, that all Countries of new Conquest, till settled, are rather Matters of Burden than of Strength. On the other side, *England* has *Scotland* united, and *Ireland* reduced to Obedience, and planted; which are great Augmentations.

25. *Secondly*, in eighty-eight, the Kingdom of *France*, able to counter-balance *Spain* itself, much more in Conjunction, was torn with the Party of the League; which gave Law to their King, and depended wholly upon *Spain*. Now *France* is united under a valiant young King, generally obeyed, if he will himself, and King of *Navarre*, as well as of *France*; and no ways taken Prisoner, tho he be tied in a double Chain of Alliance with *Spain*.

26. *Thirdly*, in eighty-eight, there sat in the See of *Rome* a fierce thundering Friar, that would set all at odds: and tho he would after have turned his Teeth upon *Spain*; yet he was taken Order with before it came to that. Now there is ascended to the Papacy, a Personage, that came in by a chaste Election, no way obliged to the *Spaniards*: a Man bred in Embassages and Affairs of State; that has much of the Prince, and nothing of the Friar: and one, that tho he love the Chair of the Papacy well, yet loves the Carpet above the Chair; that is, *Italy* and the Liberties thereof.

27. *Fourthly*, in eighty-eight, the King of *Denmark* was a Stranger to *England*, and rather inclined to *Spain*; now that King is incorporated to the Blood of *England*, and engaged in the Quarrel of the *Palatinate*. Then also *Venice*, *Savoy*, and the Princes and Cities of *Germany*, had but a dull Fear of the Greatness of *Spain*, upon a general Apprehension only of the spreading and ambitious Designs of that Nation: now their Fear is sharpened and pointed, by the *Spaniards* late Enterprizes upon the *Valtoline* and the *Palatinate*, which came nearer to them.

28. *Lastly*, the *Dutch*, the *Spaniard's* perpetual Duelist, has at present, five Ships to one, and the like Proportion in Treasure and Wealth, to that they had in eighty-eight. Neither is it possible that the Coffers of *Spain* should now be fuller than they were in eighty-eight; for at that time *Spain* had no other Wars, but those of the *Low-Countries*, which were grown into an Ordinary; but now they have had coupled therewith the Extraordinary of the *Valtoline*, and the *Palatinate*. And thus I conclude my Answer to the Objection as to the Difference of Times; not entring into more secret Passages of State,

State, but keeping that Character of Stile whereof *Seneca* says, *It denotes more than it expresses*.*

29. Here I would end with Matter of Experience, did I not hold it necessary to discover a wonderful erroneous Observation that walks about, and is commonly received, contrary to all the true Account of Time and Experience; viz. that the *Spaniard*, where he once gets in, will seldom or never be got out again. But nothing is less true than this. Not long since, they had footing at *Brest*, and some other Parts in *French Britain*, and afterwards quitted them. They had *Calais*, *Ardes*, and *Amiens*, and surrendered them, or were beaten out. They had since *Versailles*, and fairly left it. They had, the other Day, the *Valtoline*, and now have put it in Deposit. What they will do with *Ormus*, which the *Persian* has taken from them, we shall see. So that to speak truly; of later Times, they have rather poached and offered at a Number of Enterprizes, than maintained any constantly: quite contrary to that idle Tradition. In more ancient Times, (leaving their Purchases in *Africk*, which they after abandoned) when their great Emperor *Charles* had clasped *Germany* in his Fift, he was forced in the End to go from *Isburg*, and to quit every Foot in *Germany* round, that he had gained; which I doubt not will be the hereditary Issue of this late Purchase of the *Palatinate*. And so I conclude the Ground I have to think, that *Spain* will be no Over-match for *Great-Britain*; if his Majesty shall enter into a War, from Experience, and the Records of Time.

30. The Grounds from Reason are many. I will extract the principal, and open them briefly, and as in the Bud. For Situation, I pass it over; tho no small Point: *England*, *Scotland*, *Ireland*, and our good Confederates, the United Provinces, lie all plum together; not accessible but by Sea; or at least by the passing of great Rivers, which are natural Fortifications. Whereas the Dominions of *Spain* are so scattered, as to yield great Choice of the Scenes of the War; and promises slow Succours to such Parts as shall be attempted.

31. There are three main Parts of military Puissance; Men, Money, and Confederates. Men are to be considered with regard to Valour and Number. Of Valour I speak not; take it from the Witnesses above-produced: yet the old Observation is true, that the *Spaniards* Valour lies in the Eye of the Looker on; but the *English* Valour lies about the Soldier's Heart. A Valour of Glory, and a Valour of natural Courage, are two things. But for Number; *Spain* is a Nation thin sown with People; partly by reason of the Sterility of the Soil; and partly because their Natives are exhausted by so many Employments in such vast Territories as they possess. So that it has been counted a kind of Miracle, to see ten or twelve thousand native *Spaniards* in an Army. And it is certain, as we touched above, that the Secret of the Power of *Spain* consists in a veteran Army, composed of miscellany Forces of all Nations; which for many Years they have had on Foot upon

* Plus significat quam loquitur.

one Occasion or other: and if there should happen the Misfortune of a Battel, it would be a long Work to draw on Supplies. They tell of a *Spanish* Embassador, that was brought to see the Treasury of St. Mark at *Venice*, and still he looked down to the Ground; and being asked, why he did so; said, he was looking if their Treasure had any Root, as his Master's had. But however it be of their Treasure, certainly their Forces have scarce any Root; or at least, it is such a Root as buds poorly and slowly. 'Tis true, they have *Walloons*, who are tall Soldiers; yet that is but a Spot of Ground. But on the other side, there is not in the World again such a Spring and Seminary of brave military People, as is *England*, *Scotland*, *Ireland*, and the United Provinces: So that if Wars should mow them down ever so fast, they may be suddenly supplied, and come up again.

The Riches of
Spain pre-
cations.

32. Money, no doubt, is the principal Part of the Greatness of *Spain*; for by that they maintain their veteran Army: and *Spain* is the only State of *Europe* that is a Money-Grower. But in this respect, of all others, comes most to be considered, the ticklish and brittle State of the Greatness of *Spain*. Their Greatness consists in their Treasure, their Treasure in their *Indies*, and their *Indies*, if it be well weigh'd, are but an Accession to such as are Masters by Sea. So that this Axletree, whereupon their Greatness turns, is soon cut in two by any one that shall be stronger than them at Sea. Herein, therefore, I refer to the Opinions of all Men, whether the maritime Forces of *Great-Britain*, and the United Provinces, be not able to beat the *Spaniards* at Sea? For if so, the Links of that Chain, whereby they hold their Greatness, are dissolved.

A Sea War
with Spain
gainful.

33. Now if it be said, that admit the Case of *Spain* such as we have put it; yet if we descend into our own Case, we shall find we are not in a Condition to enter into a War with *Spain*: I answer; that I know no such thing; the Mint beats well; and the Pulses of the People beat well. But there is another Point that quite destroys this Objection: for whereas Wars are generally Causes of Poverty, or Consumption; on the contrary, the particular Nature of this War with *Spain*, if made by Sea, is likely to be a gainful and restorative War: So that if we go roundly on at the first, the War in Continuance will find itself. And therefore you must make a great Difference between *Hercules's* Labours by Land, and *Jason's* Voyage by Sea for the Golden Fleece.

Spain defini-
tude of sure
Confederates.

34. As to *Confederates*, I will not take upon me the Knowledge how the Princes, States, and Counsels of *Europe*, at this Day, stand affected towards *Spain*; for that entrenches upon the secret Occurrents of the present Time, wherewith, in this Treatise, I have forbore to meddle. But to speak of what lies open and in View; I see much Matter of Quarrel and Jealousy, but little of Amity and Trust towards *Spain*, almost in all other States. *France* is in Competition with them for three noble Portions of their Monarchy, *Navarre*, *Naples*, and *Milan*; and now freshly in Difference with them about the *Valtoline*. And we see that once in thirty or forty Years comes a Pope, that casts his Eye upon the Kingdom of *Naples*,

Naples, to recover it to the Church : as it was in the Minds of *Julius* the Second, *Paul* the Fourth, and *Sixtus* the Fifth. As for that great Body of *Germany*, they have greater reason to confederate themselves with the Kings of *France*, and *Great-Britain*, or *Denmark*, for the Liberty of the *German* Nation, and for the Expulsion of the *Spanish* and foreign Forces, than they had in the Years 1552 and 1553. At which time they contracted a League with *Henry* the Second, the *French* King, upon the same Articles against *Charles* the Fifth ; who had possessed himself of a great part of *Germany*, thro the Discord of the *German* Princes, which himself had sown and fomented. And this League at that time did the Deed ; drove all the *Spaniards* out of that part of *Germany* ; and re-instated that Nation in their ancient Liberty and Honour. For the *West-Indies* ; tho *Spain* has not yet had much actual Disturbance there, except from *England* ; yet I see all Princes lay a kind of Claim to them ; accounting the Title of *Spain* but as a Monopoly of these large Countries, wherein they have, in great part, but an imaginary Possession. For *Africk*, upon the West ; the *Moors* of *Valentia* expelled, and their Allies, yet hang as a Cloud or Storm over *Spain*. *Gabor*, on the East, is an anniversary Wind, that rises once every Year upon the Party of *Austria*. And *Persia* has entered into Hostility with *Spain* ; and given them the first Blow by the taking of *Ormus*. 'Tis within every Man's Observation also, that *Venice* thinks their State almost on fire, if the *Spaniards* hold the *Valtoline*. *Savoy* has learned by fresh Experience, that Alliance with *Spain* is no Security against the Ambition of *Spain*. And *Bavaria* has likewise been taught, that Merit and Service obliges the *Spaniard* but from Day to Day.

35. Neither do I say, for all this, that *Spain* may not rectify much of this ill Blood by their particular cunning Negotiation : but yet it is in the Body, and may break out, no Man knows when, into ill Accidents : at least it shews plainly, what serves for our Purpose, that *Spain* is very destitute of assured and fast Confederates. I, therefore, conclude this Part, with the tart Saying of a present Counsellor of State in *Spain*, who, upon Occasion, said to the King his Master ; " I will declare thus much for your Comfort ; your Majesty has but two Enemies, whereof the one " is all the World, and the other your own Ministers." And thus I end my second main Point, *the Balancing of the Forces between England and Spain*.

S U P P L E M E N T XIII.
T H E
P R U D E N T S T A T E S M A N :
O R , T H E
O F F I C E
O F
P R I M E M I N I S T E R S * .

T H E

* See Vol. I. pag. 241.

SUPPLEMENT

THE

PRUDENT STATESMAN

OR THE

OFFICE

OF

PRIME MINISTERS

THE

OF THE

ar
D
ap
vi
let
In
ing
now
thei
Que
not
Frie
V

THE PRUDENT STATESMAN: OR, THE Office of Prime Ministers.

1. **T**HE Administration of publick Affairs lies principally upon the Officers of States. *Kings* cannot possibly see all things with their own Eyes; nor hear all things with their own Ears: they must commit many great Trusts to their Ministers. And hence even the wisest Princes have had their Friends, and Favourites, in all Ages; and made their several Uses of them: sometimes for communicating their Thoughts, and thereby ripening their own Judgments; sometimes interposing them betwixt themselves, and the Envy of their People, &c. for Princes either cannot err; or throw their Errors upon their Ministers: and they who stand nearest must bear the greatest Load. *Kings* are answerable to God for their Actions; but the Ministers of *Kings*, whose Eyes, Ears, and Hands they are, must be answerable not only to God and the King, but also to the Subject.

*The Necessity
and Use of
Prime Ministers.*

2. In a Post of so much Difficulty and Danger, too great Caution and Circumspection cannot be used, on the Part of the Minister; to secure, and approve himself in the Eyes of God and Man. And for the better Discharge of his Duty, and the Dispatch of Affairs, he might do well to appoint and set apart certain Times for receiving Petitions, and the giving of Audience: And whenever the Matter proves weighty or difficult, let it always be delivered in Writing; and a Day fixed to be attended again: In the mean time, the Writing may be read by another; who by marking out the most material Part, shall prepare it for a ready Perusal. And now a select Friend or two, of tried Judgment and Fidelity, may be asked their Opinions; and desired to set down their Reasons, on both sides of the Question. But if the Matter be of extraordinary Consequence, it were not amiss to send several Copies of the same Petition to several different Friends, all of them unacquainted with this Procedure, and request their

*A general
Direction for
their Conduct.*

The PRUDENT STATESMAN.

respective Answers, in Writing: whence, by comparing them together, the Minister shall be able to give a true Judgment upon the Matter, and at the same time discern the Abilities and Fidelity of his Friends. And in such Cases no Minister should trust his own Judgment and Capacity; for no Man is omniscient: nor should any Confidence be reposed in Servants, or Dependants, who in such Cases always have their own Interest in view.

*The Office of
Prime Mini-
sters distribu-
ted.*

3. The Office of a Prime Minister may be considered under the following Heads; viz. (1.) Matters of Religion, the Church and Clergy: (2.) Matters of Justice, the Laws, and the Professors thereof: (3.) Counsellors, the Council-Table, and the great Offices and Officers of the Kingdom: (4.) Foreign Negotiations and Embassies: (5.) Peace and War; the Navy, Forts, and what belongs to them: (6.) Trade at home and abroad: (7.) Colonies, or foreign Plantations: (8.) The Court and Curality.

*Religious
Matters.*

4. When any thing is offered with regard to the Church, Churchmen, or Church-Government; it is safest for a Prime Minister to take the Opinion of some grave and eminent Divines, especially such as are of exemplary Lives. And if any Question be moved concerning the Doctrine of the Church of *England*, expressed in the *Thirty-nine Articles*, 'tis prudent not to give the least Ear to the Movers thereof: this Doctrine being so orthodoxly settled, as not to be questioned without extreme Danger to the Honour and Stability of our Religion; which has been sealed with the Blood of so many Martyrs and Confessors, as are famous thro the Christian World. The Enemies and Underminers thereof are the *Roman* Catholics, on the one hand, whose Tenets are inconsistent with the Truth of the Religion professed and protested by the Church of *England*; and the Anabaptists, Separatists, and Sectaries, on the other hand; whose Tenets are full of Schism, and inconsistent with Monarchy: and they have been several times very busy in this Kingdom, under the Colour of Zeal. Let us beware of them in *England*; a little Countenance or Connivance sets them on fire. But for the regulating of either, there needs no other Coercion than the due Execution of the Laws established by Parliament.

Bishops.

5. The Archbishops and Bishops, next under the King, have the Government of the Church and Ecclesiastical Affairs: and a good Minister will be no means of preferring any to those Places, for by-Respects; but only for their Learning, Gravity and Worth; as their Lives and Doctrine ought to be exemplary.

*Deans, Ca-
nons, &c.*

6. Deans, Canons, or Prebends of Cathedrals, at their first Institution, were of great Use in the Church; and were not only to be of Counsel with the Bishop for his Revenue, but chiefly for his Government in Ecclesiastical Causes. The best means should be used to prefer such to these Places as are fit for the Purpose; Men eminent for their Learning, Piety and Discretion: and let them be reduced again to their first Institution.

A prime Minister will be often solicited, and perhaps importuned to prefer Scholars to Church-livings: and Friends may be advanced that Way, *ceteris paribus*; otherwise these are not Places merely of Favour: for the Charge of Souls lies upon them; the greatest Account whereof will be required at their own Hands: but such will share deeply in their Faults, who are the Instruments of their Preferment.

7. Order and decent Ceremonies in the Church, are comely and commendable; but there must be great Care not to introduce Innovations: they will quickly prove scandalous; Men are naturally prone to Suspicion; the Protestant Religion is seated in the golden Mean; the Enemies to her are the Extremes on either Hand. *Ceremonies of the Church.*

8. The Persons of Church-men are to be had in due respect, for their Works sake, and protected from Scorn: but if a Clergyman be loose and scandalous, he must not be patronized or winked at; the Example of a few such will corrupt a great many. *The Persons of Ecclesiastics.*

9. Prudent Care must be taken, that the Patrimony of the Church be not sacrilegiously diverted to Lay-Uses. *The Church's Patrimony.*

10. Colleges and Schools of Learning are to be cherished and encouraged, for breeding up a new Supply to furnish the Church and Commonwealth, when the old Stock are transplanted. This Kingdom in later Ages has been famous for good Literature; and if Preferment shall attend the Deservers, there will not want Supplies. *Colleges and Schools.*

II.

11. Next to Religion, let the principal Care be to promote Justice. By Justice and Mercy the King's Throne is established. *Matters of Law.*

Let the Rule of Justice be the Laws of the Land; an impartial Arbitration between the King and his People, and between one Subject and another. I shall not speak superlatively of them, lest I be suspected of Partiality, in regard of my own Profession; but this I may truly say, they are second to none in the Christian World. They are equal between Prince and People; by which the King has the justest Prerogative, and the People the best Liberty: and if at any time there be an unjust Deviation, *Hominis est vitium, non Professionis.*

12. And let no arbitrary Power be intruded. The People of this Kingdom love the Laws thereof; and nothing will oblige them more, than a Confidence of freely enjoying them. What the Nobles once said in Parliament, *Nolumus Leges Angliæ mutari*, is imprinted in the Hearts of all the People. *No arbitrary Power to be allowed.*

13. But because the Life of the Laws lies in their due Execution and Administration, let an Eye be had, in the first Place, to the Choice of good Judges. A good Judge must be learned in his Profession, patient in Hearing, prudent in Governing, powerful in Elocution, just in his Judgment: and, to sum up all, he must be a Man of Courage, fearing God, and hating Covetousness. An ignorant Man cannot, and a Coward dares not, be a good Judge. *Judges.*

*None to inter-
pose in judi-
cial Cases.*

14. By no means let a Minister interpose, either by Word or Letter, in any Cause depending, or like to be depending, in any Court of Justice; nor suffer any other great Man to interpose; and even dissuade the King himself from it: for if this should prevail, it perverts Justice. And if the Judge be so just, and of such Courage, as not to be inclined thereby; yet it always leaves a Taint of Suspicion behind it. Judges must be as chaste as *Cæsar's Wife*; and neither be, nor be suspected of Injustice. And indeed the Honour of the Judges in their Judicature, is the King's Honour; whose Person they represent.

Circuits.

15. The Judges may be of great Use in their Circuits; which are, twice in the Year, held throughout the Kingdom. The Trial of Causes between Party and Party, or delivering of the Goals in the several Counties, are very useful for the Expedition of Justice; yet the Judges are of much more Service for the Government of the Counties thro which they pass, if this were well considered. For if they had Instructions to this Purpose, they might be the best Intelligencers to the King of the true State of his whole Kingdom, of the Disposition of the People, of their Inclinations, Intentions and Motions, which are necessary to be truly understood.

*Charges to be
given the
Judges before
the Circuits.*

16. To this End I could wish, that against every Circuit all the Judges should, sometimes by the King himself, and sometimes by the Lord Chancellor, in the King's Name, receive a Charge of those things which the present Times may require; and at their Return deliver a faithful Account thereof; how they found and left the Counties thro which they passed, and in which they kept their Assizes. And that they might the better perform this important Office, it will not be amiss if sometimes the Charge be publick; as it uses to be in the Star-Chamber, at the end of the Terms, next before the Circuit begins; where the King's Care of Justice, and the Good of his People, may be published; and if sometimes also it be private, to communicate to the Judges some things not so fit to be openly delivered.

*The Judges to
continue lon-
ger in their
Circuits.*

17. I could wish also, that the Judges were directed to make a little longer Stay in a Place than usually they do; a Day more in a County would be a very good Addition; altho their Salary for their Circuits were increased in Proportion: it would suit better with the Gravity of their Employment. Whereas, now they are sometimes obliged to rise too early, and sit too late, for the Dispatch of their Business; to the extraordinary Trouble of themselves, and of the People: and, what is principally to be regarded, have not leisure to inform themselves of the true State of the Country.

*Sheriffs of the
Counties to
attend the
Judges.*

18. The Attendance of the *Sheriffs of the Counties*, accompanied with the principal Gentlemen, in a comely, and not costly Equipage, upon the Judges of the Assize, at their coming to the Place of their sitting, and at their going out, is not only a Civility, but also of Use: as it raises a Reverence to the Persons and Places of the Judges; who coming from the King himself on so great an Errand, should not be neglected.

19. If any one sue to be made a Judge, I should suspect him: but if either directly or indirectly he should bargain for a Place of Judicature, let him be rejected with Shame; *Vendere jure potest, emerat ille prius.* *No Place of Jurisdiction to be sold.*

20. When the Place of a Chief Judge of a Court becomes vacant, a puisne Judge of that Court, or of another Court, who has approved himself fit and deserving, should be sometimes preferred. This would be a good Encouragement for him, and others by his Example. *The Puisne to be preferred to Chief Judges.*

21. Next to the Judge, Care should be used in the Choice of such as are called to the Degree of Serjeants at Law; for such they must be first, before they are made Judges: and none should be made Serjeants but such as probably might be held fit for Judges afterwards; when the Experience at the Bar has fitted them for the Bench. Therefore, by all means, suppress the unworthy Course of late in Use, of paying Money for it: which may satisfy some Courtiers, but is no Honour to the Person preferred; nor to the King, who thus prefers them. *Serjeants at Law.*

22. The King's Council at Law, especially his Attorney and Solicitor General, being of continual Use in the King's Service; not only for his Revenue, but for all the Parts of his Government; should doubtless be Men every way fit and able for that Employment: they should be learned in their Profession; not ignorant in other things; and dextrous in those Affairs, the Dispatch whereof is committed to them. *The King's Council at Law. Attorney and Solicitor-General.*

23. The King's Attorney of the Court of Wards is in the true Quality of a Judge; therefore what has already been observed of the Judges, intended principally of the three great Courts of Law at Westminster, may be applied to the Choice of the Attorney of this Court. And the like for the Attorney of the Dutchy of Lancaster; who partakes of both Qualities, partly of a Judge in that Court, and partly of an Attorney-General; for so much as concerns the proper Revenue of the Dutchy. *Attorney of the Wards and Dutchy.*

24. The Judges of the four Circuits in the twelve Shires of Wales, tho they are not of the first Magnitude, nor need be of the Degree of the Coif; except the Chief Justice of Chester, who is one of their Number; yet their Choice should be directed by the same Rules as for the other Judges. And indeed these sometimes are, and fitly may be, transplanted into the higher Courts. *The Welsh Judges.*

25. There are many Courts; some superior, some provincial, and some of a lower Orb: it were to be wished, and is fit to be so ordered, that each of them keep within its proper Sphere. The Harmony of Justice is sweetest, when there is no jarring about the Jurisdiction of the Courts: which methinks Wisdom cannot much differ upon; their true Bounds being for the most part so clearly known. *Contentions about the Jurisdiction of Courts to be prevented.*

26. Thus much for the Judges; next for the principal Ministers of Justice. The High-Sheriffs of the Counties have been very ancient in this Kingdom; I am sure before the Conquest: and such must be chose as are fit for the Office; which is of great Trust and Power; the *Posse Comitatus*, the Power of the whole County, being legally committed to them. Therefore it is agreeable to the Intention of the Law, that the Choice of them *The High-Sheriffs.*

them should be by the Recommendation of the great Officers of the Kingdom; and by Advice of the Judges; who are presumed to be well apprized of the Condition of the Gentry of the whole Kingdom: and altho the King may do it of himself, yet the old way is the good way.

Not to be

prick'd or ex-
cused for Mo-
ney.

27. I utterly condemn the Practice lately crept into the Court; that some who are prick'd for Sheriffs, and were fit, should get out of the Bill; and others who were neither thought on, nor worthy, should be nominated; and both for Money.

Lieutenants

and Deputy
Lieutenants of
Counties.

28. As for the Lord *Lieutenants*, and Deputy *Lieutenants of the Counties*; their proper Use is for the Management of military Affairs, against an Invasion from abroad, or a Rebellion or Seditious at home. Good Choice should be made of them, prudent Instructions given them, and as little of the arbitrary Power, as possible; left them. And let not the Muster-Masters, and other Officers under them, inroach upon the Subject; for this will detract much from the King's Service.

Justices of
Peace.

29. The *Justices of Peace* are of great Use. Anciently there were Conservators of the Peace: these are the same; only several Acts of Parliament have altered their Denomination, and enlarged their Jurisdiction in many Particulars: and the sifter they are for preserving the Peace of the Kingdom, the more Care should to be taken in the Choice of them.

Not to be chose
for Favour.

30. But none should be put into either of these Commissions, with an Eye of Favour to their Persons; to give them Countenance or Reputation in the Places where they live; but for the King's Service only: nor should any be turned out for the Disfavour of any great Man. This has been often used; and proved of no good Service to the King.

Justice and
Mercy, how
to be mixed.

31. Let it be well observed that the Execution of Justice is committed to the Judges, which seems the severer Part; but the milder Part, which is Mercy, is wholly left in the King's immediate Hand: and Justice and Mercy are the true Supports of the Throne. If the King shall be wholly intent upon Justice, it may appear too rigid; but if he be over-remiss and easy, it draws Contempt upon him. Examples of Justice must sometimes be made for Terror; Examples of Mercy sometimes for Comfort to others: the one procures Fear, and the other Love. If a King be not both feared and loved, he is lost.

The Court of
Parliament,

32. The Court of Parliament in *England* is superlative; and therefore it will become me to speak the more cautiously of it. Its Institution is very ancient in this Kingdom. It consists of the two Houses, of the Peers and Commons, as the Members; and of the King's Majesty, as the Head of that great Body. By the King's Authority alone, and by his Writs, they are assembled; and by him alone are they prorogued and dissolved: but each House may adjourn itself.

are a Council
to the King.

33. Being thus assembled, they are more properly a Council to the King, than a Court; the great Council of the Kingdom, to advise his Majesty in those things of Weight and Difficulty, which concern both the King and People.

34. No

34. No new Laws can be made, nor old *Laws* abrogated or altered, *Laws, how* but by common Consent in Parliament; where Bills are prepared and pre-*passed.* sented to the two Houses, and then delivered; but nothing is concluded without the King's Royal Assent: Laws are but Embryos, till he gives them Life.

35. Yet the *House of Peers* has a Power of Judicature in some Cases; *The House of Peers a Court of Judicature.* properly to examine, and then to affirm; or if there be Cause, to reverse the Judgments, which have been given in the Court of King's Bench, the Court of highest Jurisdiction in the Kingdom for ordinary Judicature: but in these Cases it must be done by Writ of Error in *Parliamento*. And thus the Rule of their Proceedings is not *absoluta potestas*, as in making new Laws; but *limitata potestas*, according to the known Laws of the Land.

36. The House of Commons have only Power to censure the Members *The Power of the House of Commons.* of their own House, in point of Election or Misdemeanors, in or towards that House; and have not, nor ever had Power, so much as to administer an Oath to prepare a Judgment.

37. The true Use of *Parliaments* in this Kingdom, is very excellent: *Use of the Parliaments.* and they should be often called, as the Affairs of the Kingdom require; and continued as long as is necessary, and no longer: otherwise they are but Burdens to the People, by reason of the Privileges justly due to the Members of the two Houses and their Attendants; which their just Rights and Privileges, are religiously to be observed and maintained: but if they should be unjustly enlarged, beyond their true Bounds, they might lessen the just Power of the Crown; as bordering so near upon Popularity.

38. Thus far we have spoke of the Common Law of *England*, gene-*The Civil Law.* rally and properly so called; because 'tis most general and common to almost all Cases and Causes, both civil and criminal: but there is also another Law, called the *Civil or Ecclesiastical Law*, which is confined to some *Civilians.* few Heads; and this is not to be neglected. And altho I am a Professor of the Common Law, yet I earnestly advise that the *Civilians* be not discountenanced nor discouraged: otherwise, when we shall have to do with any foreign King or State, we shall be at a miserable Loss for want of learned Men in that Profession.

III.

39. We come now to consider those things which relate to Counsellors of *Two Sorts of* State, the Council-Table, and the great Offices and Officers of the King-*Counsellors.* dom. Of Counsellors there are two sorts; the first, *Consiliarii nati*: such are the Prince of *Wales*, and others of the King's Sons, who are born Counsellors to the King; and are early to learn the Art of Governing. But the ordinary sort of Counsellors are such as the King, out of a due Consideration of their Worth, Abilities, and Fidelity to his Person and Crown, calls to be of Council with him, in his ordinary Government. And the Council-Table

* See Vol. I. pag. 240, &c.

The Council-
Table.

Table is so called from the Place where they usually assemble and sit; and their Oath is the only Ceremony used, to make them such; which Oath is solemnly given them at their first Admission. These honourable Persons are from thenceforth of that Board and Body; and cannot come till they are thus called: and the King, at his Pleasure, may spare their Attendance; which they at their own Pleasure may not do.

The Council,
how to be
chose.

40. The Council therefore must be chosen of Persons of great Trust, Fidelity, Wisdom, and Judgment, who are to assist in bearing up the King's Throne; and of known Experience in publick Affairs. Yet it may not be unfit to call some that are younger, to train them up in that Trade; and so fit them for those weighty Affairs, against the time of greater Maturity; and some also for the Honour of their Persons: but these two sorts not to be tied to so strict Attendance as the others, from whom the present Dispatch of Business is expected.

Their Num-
ber to be limi-
ted.

41. I could wish that their Number might not be too great: the Persons of the Counsellors would then be the more venerable. And Queen Elizabeth, in whose time I had the Happiness to live many Years, was not so much observed for having a numerous, as a wise Council.

Deputy Pri-
vy-Counsel-
lors.

42. The Deputy of a Privy-Counsellor to the King, I conceive, is, not only to attend the Council-Board, at the times appointed; and there to consult of what shall be proposed; but also to study those things which may advance the King's Honour and Safety, and the Good of the Kingdom; and to communicate the same to the King, or to his Fellow-Counsellors, as there shall be Occasion.

Privy-Coun-
sellors not to
give Opinion
of a sudden.

43. And when any new thing shall be proposed to Consideration, it were adviseable that no Counsellor suddenly deliver'd any positive Opinion thereof; because it is not easy with all Men to retract their Opinions, tho there should be Cause for it: but only, at most, to break it, at first, that it may be the better understood against the next Meeting.

Resolutions
not to be pre-
cipitated.

44. When any Matter of Weight has been debated, and seems ready for a Resolution; I could wish it might not be concluded at that Sitting, if the Necessity of the time do not press it; lest, upon second Thoughts, there should be Cause to alter: which is not for the Gravity and Honour of that Board.

The King to be
present.

45. I wish also that the King would be pleased sometimes to be present at that Board; it adds a Majesty to it: and yet not be too frequently there; which would render it less esteemed, when it is become common; and might also make the Counsellors not so free in their Debates, as they would be in Absence of the King.

Secrecy requi-
red in Privy-
Counsellors.

46. Besides the giving of Counsel, the Counsellors are bound by their Duties, *ex vi termini*, as well as by their Oaths, to keep Counsel; and they are therefore called *de privato consilio Regis*; & *a secretioribus consiliis Regis*. One thing I add, in the Negative, which is not fit for that Board; the entertaining of private Causes, of *meum & tuum*: these should be left to the ordinary Course and Courts of Justice.

47. As great Care should be used, in choosing the Counsellors themselves; *Counsellors, how to be chosen.* so likewise in choosing the Clerks of the Council, for Secrecy of Consultation: and it were fit that his Majesty gave strict Charge, and bound it also with a solemn Order, that no Copies of the Orders of that Table be delivered out by the Clerks of the Council, but by the Order of the Board: nor any one, not being a Counsellor, or a Clerk of the Council, or his Clerk, to have Access to the Council-Books; and, to this purpose, that the Servants attending the Clerks of the Council be bound to Secrecy, as well as their Masters.

48. As to the great Offices and Officers of the Kingdom, there need little be said; the greatest part of them being such, as cannot well be severed from the Counsellorship: and therefore the same Rules are to be observed in the Choice of both. But in the Quality of the Persons, I conceive it most convenient to have some of every sort, as it was in the time of Queen *Elizabeth*; one Bishop at least, in respect of Questions touching Religion, or Church-Government; one or more skilled in the Laws; some for martial Affairs; and some for foreign Affairs: by this Mixture, one will help another in all things, that shall happen to be moved. But if this should fail, it will be a safe way, to consult with some other able Persons, well versed in that point, which is the Subject of their Consultation. And this may be done so warily, as not to discover the principal End therein. *The great Offices and Officers.*

IV.

49. We come next to foreign Negotiations and Embassies.

Embassies

With regard hereto it was the Course of Queen *Elizabeth* to vary, according to the Nature of the Employment, and the Quality of the Persons she employed; which is a good Rule to go by.

50. If it were an Embassy of Congratulation or Ceremony, (which must not be neglected) Choice was made of some noble Person, eminent in Place, and able in Purse; who would take it as a Mark of Favour; and discharge it, without any great Burden to the Queen's Coffers, for his own Honour. *of Ceremony.*

51. But if it were an Embassy of Weight, concerning Affairs of State, Choice was made of some grave Person, of known Judgment, Wisdom, and Experience; and not of a young Man unpractised in State Matters; nor of a mere formal Man, whatever his Title or Outside should be. *Embassies of Business.*

52. Yet in Company of such were usually sent some promising young Noblemen, or Gentlemen, as Assistants or Attendants, according to the Quality of the Persons; who might be thereby prepared and fitted for the like Employment another time. *The Attendants of Embassadors.*

53. And along with them were always sent some grave and sober Men, skilful in the Civil Law; some in the Languages; and some who had been formerly conversant in the Courts of those Princes, and knew their Ways: these were Assistants in private; but not trusted to manage Affairs in publick:

publick : as that would detract from the Honour of the principal Embassador.

*Mercantile
Negotiations.*

54. If the Negotiation were upon Merchants Affairs; then the Persons usually employ'd were Doctors of the Civil Law, assisted with some other discreet Men : and in such Cases, the Charge was ordinarily defray'd by the Company or Society of Merchants, whom the Negotiation concerned.

Residents.

55. If Residents, or Agents, were sent to remain at the Courts of foreign Princes or States; as it was ever held fit, to hold Correspondence with them upon all Occasions; such Persons were made Choice of as were presumed to be vigilant, industrious, and discreet; and had the Language of the Place where they were sent : and with these went such as promised to be worthy of the like Employment hereafter. Their Care was, to give true and early Intelligence of all Occurrences, either to the Queen herself, or the Secretaries of State; to whom they had their immediate Relation.

56. Their Charge was always born by the Queen; and duly paid out of the Exchequer, in such Proportion, as, according to their Qualities and Places, might give them an honourable Subsistence abroad : but for the Reward of their Service; they were to expect that upon their Return, by some such Preferment as might be worthy of them; and yet be little Burden to the Queen's Coffers or Revenues.

Their Instructions.

57. At going out, they had their general Instructions in Writing, which might be communicated to the Ministers of the States whereto they were sent; they had also private Instructions, upon particular Occasions : and at their Return, they always rendered an Account of some things to the Queen herself; of some to the Body of the Council; and of others to the Secretaries of State; who made use of them, or communicated them, as there was Occasion.

*The Education
of foreign Mi-
nisters.*

58. In those Days there was a constant Course held, by the Advice of the Secretaries, or some principal Counsellors, of sending into several Parts beyond the Seas, some young Men of promising Parts, to be trained up, and made fit for such publick Employments; and to learn the Languages. This was at the Charges of the Queen, and run not high; for they travelled but as private Gentlemen : and as their Deserts appeared by their Industry, so they were farther employed or rewarded. And this is an excellent Course to breed up a Nursery of such publick Plants.

V.

Wars.

59. We come next to *Peace* and *War*.

Wars are either *foreign* or *domestick* : As for a War of Invasion from abroad; we must not be over-secure : that is the way to invite it. And for Peace at home; Justice is the best Protector thereof.

*To prevent an
Invasion.*

60. In order to prevent any Invasion or War from abroad, Care must be had of our Out-works, the Royal Navy, and the Shipping of our Kingdom; which are the Walls thereof. Every great Ship is an impregnable Fort

Fort; and our many safe and commodious Ports and Havens, in these Kingdoms, are as the Redoubts to secure them.

61. No Nation in the World can rival *England* in the Oak-Timber, *Naval-Stores*, whereof the Bodies of our Ships are built; and we need not borrow of our Neighbours Iron for Spikes, or Nails to fasten them together: but there must be a great deal of Caution used, and Provision made, that our Ship-Timber be not unnecessarily wasted.

62. But for Tackling, as Sails and Cordage, we are beholden to our Neighbours; and buy them for our Money: these therefore must be foreseen and stored up against a time of Need; and not sought for when we are to use them. But we are much to blame, that we make them not at home; only Pitch and Tar we have not of our own.

63. For the true Art of Building Ships, both for Burden and Service, *Ship-building*, no Nation in the World exceeds us. Ship-Wrights, and all other Artisans belonging to that Trade, must be cherished and encouraged.

64. Powder and Ammunition, of all sorts, we can have at home; and in *Ammunition*, exchange for other home Commodities we may be plentifully supplied therewith from our Neighbours: which must not be neglected.

65. This Kingdom is plentifully furnished with Mariners and Sea-men, *Sailors*. The constant Trade of merchandizing will supply us at time of Need; and navigable Rivers will repair the Store, both to the Royal Navy, and to the Merchants, if employ'd, and well paid for their Labour.

66. Sea-Captains, Commanders, and other Officers, must be encouraged, *Sea-Officers*, and raised by degrees; as their Fidelity and Industry deserve it. And never let brave Spirits, that have fitted themselves for Command, either by Sea or Land, be laid by; as Persons unnecessary for the Time. Let Arms and Ammunition of all sorts be provided and stored up, as against a Day of Battel; and let the Ports and Forts be so fitted, as if by the next Wind we should hear of an Alarm: such a known Provision is the surest Protection.

67. And for a *foreign War*, intended by ourselves, to enlarge the Bounds of our Empire; I have no Opinion either of the Justness or Fitness of it: our own Territories seem large enough, and are naturally bounded by the Ocean. And it were very hard to attempt such a War with Hopes of Success; as the Subjects of this Kingdom believe it illegal to be forced beyond the Seas, without their own Consent, upon Expectation of an unwarranted Conquest; but to resist an invading Enemy, or to suppress Rebels, the Subject may, and should be commanded out. The whole Kingdom must be one entire Body; otherwise that Saying will be verified, *Dum singuli pugnamus, omnes vincimus*.

68. Our strict League of Amity and Alliance with the *Dutch*, is a mutual Strength to both; and the Shipping of both, in Conjunction, being so powerful, no Foreigner will venture upon it. This League and Friendship must inviolably be observed. *Alliance with Holland.*

69. There remains then no Danger to this Kingdom, but from a *Civil War*. *Civil War.*

War; which is the most desperate of all. The King's Wisdom and Justice

tice must foresee and prevent it; or if it should happen, quench such a Wildfire, with all possible Diligence. The Cures of a Civil War are effected either by preventive Remedies; which by just and equal Government take away the Occasion; or by severe ones, if the other prevail not. The Service and Vigilancy of the Deputy-Lieutenants in every County, and of the High-Sheriffs, will herein contribute much to our Security. But if this should not prevail, peccant Humours, and the Disaffected, must by a timely Enquiry be discovered, purged out, or cut off. Mercy, in such a Case, is real Cruelty in a King. Yet if the Heads of the Tribes can be taken off, and the misled Multitude will see their Error, and return to their Obedience; such an Extent of Mercy is both honourable and profitable.

Money.

70. A King, against a Storm, must ever provide a convenient Stock of Treasure; and neither be without Money, which is called the Sinews of War; nor depend upon the Courtesy of others, which may fail at a Pinch.

Magazines.

71. He must also have a *Magazine* well-stored with all sorts of Arms and Engines of War; which also must be had from foreign Parts, or provided at home; and committed to several Places, under the Custody of trusty and faithful Ministers and Officers.

Experienced Commanders.

72. He must make choice of experienced and able Commanders, to conduct and manage the War, both against a foreign Invasion, and a domestick Rebellion; who should not be young and giddy, but fit to govern others as well as themselves.

73. Let not such be discouraged, if they deserve well, by Misinformation, or for satisfying the Humours or Ambition of others; perhaps, out of Envy; perhaps, out of Treachery, or other sinister Ends. A steady Hand in governing military Affairs, is more requisite than in Affairs of Peace; because an Error committed in War, may, perhaps, prove irretrievable.

The Conduct to be observed when a Civil War is ended.

74. When a Civil War is ended, those who have been found faithful in the Land, must be regarded and rewarded; the traitorous, or treacherous, who have misled others, severely punished; and the Neutrals and false-hearted Friends and Followers, who have started aside like a broken Bow, be noted.

VI.

Trade at home.

75. We now turn to Trade: and this likewise is either domestick or foreign. We begin with home Trade; which enables the Subject to live; and lays the Foundation for a foreign Trade, by Traffick.

Tillage.

76. And first; Tillage must be encouraged, to supply the Kingdom with Corn for the Natives, and to spare for Exportation. I remember more than once, in times of Dearth, when it drained much Coin out of this Nation, to furnish us with Corn from foreign Parts.

Improvements in Husbandry.

77. Good Husbards will find means of improving their Lands by Lime, Chalk, Marle, or Sea-sand; where it can be had: but they should be put in mind thereof, and encouraged in their Industry.

78. Planting

78. Planting of Orchards, in a Soil and Air fit for them, is very profitable, as well as pleasant. Cyder and Perry are good Beverage in Sea Voyages.

79. Gardens likewise are very profitable, if planted with Artichokes, *Gardening.* Roots, and such other things as are fit for Food; whence they are properly call'd Kitchen-Gardens.

80. The planting of Hop-Yards, and the sowing of Woad, and Rape-Seed, are found very profitable for the Planters, in Places fit for them; and *Hop-Yards, Woad, &c.* consequently profitable for the Kingdom; which for several Years was furnished with them from beyond the Seas.

81. The planting and preserving of Wood-Lands, especially those *Woods.* productive of Timber, is not only profitable, but commendable; to furnish Posterity, both for Building and Shipping.

82. The Kingdom might be much improved by draining of drowned *Draining.* Lands, and recovering them from the overflowing both of salt and fresh Waters. And many such Grounds would be very fit for Dairies; which when well look'd after, are exceedingly commodious^a.

83. Much good Land might be gained from Forests and Chafes, more *Forests and Commons to be improved.* remote from the King's Access, and from other Places of Common; provided due Care be taken that the poor Commoners receive no Injury by such Improvement.

84. The making of navigable Rivers would prove very profitable; they *Navigable Rivers.* being as so many Inlets of Wealth, by conveying Commodities with ease from Place to Place.

85. The planting of Hemp and Flax for Linen Cloth and Cordage, *Sowing of Hemp and Flax.* would be an unknown Advantage to the Kingdom; many Places therein being as fit for it, as any foreign Parts. Understand the same of Wool and Leather of the Kingdom, if they be converted into Manufactures.

86. Let the Vanity of the Times be restrained, which the Neighbour- *Luxury to be restrained in Cloaths.* hood of other Nations has introduced: and we strive apace to exceed our Pattern. Let Vanity in Apparel, and which is more vain, that of the Fashion, be avoided. In *Spain*, they allow the Players and Curtesans the Vanity of rich and costly Cloaths; but to sober Men and Matrons, they forbid it upon pain of Infamy: a severer Punishment upon ingenuous Natures than a pecuniary Mulct.

87. Excess in costly Meats and Drinks, fetch'd from beyond the Seas, *and Diet.* should be avoided: wise Men will avoid this without a Law; and I wish there might be a Law to restrain others. The Excess of Wine costs the Kingdom much; and returns nothing but Surfeits and Diseases. Were we as wise as we easily might be, within a Year or two at the most, if we would needs drink Wine, we might drink it for half the Cost^{*}.

88. But

^a See Mr. Busbell's *Abridgement of the Lord Bacon's Philosophical Theory, in Mineral Productions.*

^{*} The Author appears to mean, by planting Vines in *England*; which if well understood and regulated, would not fail of Success; as we learn, not only from the ancient Histories of *England*; but also from modern Experience,

The native
Commodities
to be used.

88. But instead of crying up all things, which are either brought from beyond Sea, or wrought here by the Hands of Strangers; let us advance the native Commodities of our own Kingdom, and employ our Countrymen before Strangers; let us turn the Wool of the Land into Cloths and Stuffs; and the Hemp and Flax growing here, into Linen Cloth and Cordage: it would set many thousand Hands on work, and thereby one Shilling worth of the Materials, would, by Industry, be multiplied to five, ten, and often twenty times the Value when wrought. But of all sorts of Thrift for the publick Good, I would principally recommend the Encouragement of Husbandry; and the Improvement of Lands for Tillage: there is no such Usury as this. The King cannot enlarge the Bounds of these Islands, which make up his Empire; the Ocean being the unremoveable Wall which incloses them; but he may enlarge and multiply the Revenue thereof, by this honest and innocent Way of Husbandry.

English Laces
to be encouraged.

89. Our *English* Ladies are much given to the wearing of costly Laces, &c. and, if brought from *Italy*, *France*, or *Flanders*, they are in great Esteem; whereas if the like were made by the *English*, so much Thread as would make a Yard of Lace, being put into that Manufacture, would be five times, or perhaps ten or twenty times, the Value.

Grazing.

90. The breeding of Cattle is great Profit; especially the breeding of Horses, in many Places, not only for Labour, but for the Saddle; the *English* Horse, for Strength, Courage and Swiftness, not being inferior to the Horses of any other Kingdom.

Mining.

91. The Minerals of the Kingdom, especially Lead, Iron, Copper, and Tin, are of great Value, and set many able bodied Subjects to work: it is great Pity the Business of Mining should not be industriously prosecuted.

Fisheries.

92. But scarce any thing is more advantageous than fishing upon the Coasts of these Kingdoms; and the Seas belonging to them: our Neighbours, within half a Day's Sail of us, with a good Wind, can shew us the Use and Value thereof. And, doubtless, there is Sea-room enough for both Nations, without offending one another; and it would exceedingly support the Navy.

Merchandizing.

93. This Kingdom is much enriched of late by the Trade of Merchandize, which the *English* drive in foreign Parts; and, if it be wisely managed, it must of Necessity prove very beneficial: Care being taken, that the Exportation exceed the Importation in Value; for then the Balance of Trade must be returned in Coin or Bullion. This would easily be effected, if the Merchants were to make their Returns in solid Commodities, and not too much thereof in Vanity, tending to Excess.

Monopolies to be prevented.

94. But special Care must be taken, that Monopolies, which are Cankers of all Trade, be not admitted, under specious Colours of publick Good.

95. To put all this under a Regulation; if a constant Commission, to Men of Honesty and Understanding, were granted, and well pursued, for directing the Management of these things, both at home and abroad, to best Advantage; and this Commission were made subordinate to the Council-Board, it is conceived very good Effects would follow.

VII.

96. The next thing, is that of Colonies and foreign Plantations; which are very necessary, as Outlets to a populous Nation, and may be profitable also, if managed discreetly. Plantations.

97. The Choic of the Place requires many Circumstances; viz. (1.) that the Situation be near the Sea, for the sake of a commodious Intercourse with England; (2.) that the Temper of the Air and Climate be such as may best agree with the Constitutions of the English, rather inclining to Cold than Heat; (3.) that the Place be stored with Woods, Mines, and Fruits, which are natural to the Place; (4.) that the Soil be such as will probably prove fruitful for Corn, and other Conveniencies; and for breeding of Cattle; (5.) that it have Rivers both for Passage between Place and Place, and also for fishing; and, (6.) that the Natives be not so numerous, but that there may be Elbow-room enough for them: all which are likely to be found in the West-Indies. Choice of the Place for Plantations.

98. The Place also should be such as is not already planted by the Subjects of any Christian Prince or State; nor too nearly bordering upon their Plantation. And it would be more convenient, to be chosen by some of those Gentlemen or Merchants who first move in the Work; than to be assigned them from the King: for it must proceed from the Option of the People, else it sounds like an Exile; so that the Colonies must be raised by the leave of the King, and not by his Command.

99. After the Place is chose, the first step must be, to choose a fit Governor; who, altho he have not the Name, yet must have the Power of a Viceroy: and if the Person, who principally moved in the Work, be not fit for that Trust; yet he should not be excluded from Command; but then his Defect, in the governing Part, must be supplied by Assistants to be joined with him, or such as he shall very well approve of. Their Governors.

100. At their setting out, they must have their Commission, or Letters-Patent from the King; that they may acknowledge their Dependance, and be under the Protection of the Crown of England: and they must receive some general Instruction how to dispose of themselves, when they come there; which should be in the Nature of Laws to them. Their Commission and Instruction.

101. But the general Law, by which they must be guided and governed, should be the Common Law of England; and to that End, it will be fit that some Man, reasonably skilled in the Law, and otherwise qualified for such a Purpose, be inclined, or persuaded, to go thither as a Chancellor among them, at first; and when the Plantation is more settled, then to have Courts of Justice there as in England. Their Laws.

102. For the Discipline of their Church; it will be necessary to have it agree with what is settled in England, else it will make a Schism and a Rent in Christ's Coat, which must be seamless; and, to this Purpose it will be proper, that, by the King's supreme Power in Causes ecclesiastical, within all his Dominions, they be subordinate to some Bishop and Bishoprick of this Kingdom. Their Religion.

103. At

*Their Forces
and Defence.*

103. At the first planting, or as soon after as possible, they must defend themselves both against the Natives, and Strangers; and to that Purpose, must have the Assistance of some able military Man; convenient Arms and Ammunition; lest, on a sudden, they be exposed a Prey to some other Nation, when they have fitted the Colony for them.

104. For their better Defence against a common Enemy; it seems best, that foreign Plantations should be placed in one Continent, and near together: for if they are too remote from one another, they will be dis-united, and weaker.

Their Beginning.

105. They must provide themselves of such Houses as they can, for the present; and, at more leisure, such as are better: and they must first plant for Corn and Cattle, &c. for Food and necessary Sustenance; and after, they may enlarge themselves to those things, which may be for Profit, Pleasure, and Traffick.

Their Employments.

106. Wood for Shipping, in the first place, may doubtless be there had, and Minerals found; however Mines out of the Fruits of the Earth, and Seas, and Waters adjoining, will not be wanting.

Trades.

107. Regard must be had to employ the Colony in profitable Trades and Manufactures, such as the Clime will best suit, and such as may be useful to this Kingdom; and return to them an Exchange of necessary things.

Shipping.

108. In a short time they may build Vessels and Ships, for Traffick with the Parts near adjoining, and with *England* also; from whence they may be furnished with such things as they want; and, in Exchange or Barter, send from thence others, with which, either by Nature or Art, they may soon abound.

*No Outlaws,
&c. to be admitted.*

109. But no known Bankrupt, for Shelter; nor known Murderer or other wicked Person, to avoid the Law; nor known Heretick or Schismatick, should be suffered to go into those Countries; or if they do creep in there, they must not be harboured or continued: else the Place would receive them bad, and return them to *England*, upon all Occasions, worse.

*Their Trade
to be regulated.*

110. Let the Trade, to and from the Plantations, be so ordered, that some few Merchants and Tradesmen may not, under colour of furnishing the Colonies with Necessaries, grind them, so as shall always keep them in Poverty.

*Commissioners
of Plantations.*

111. And to regulate all these Inconveniencies, which will insensibly grow upon them, it were advisable the King should erect a subordinate Council in *England*; whose Care and Charge it should be, to advise and put in Execution, all things which shall be found fit for the Good of the new Plantations; and who, upon all Occasions, shall give an Account of their Proceedings to the King, or to the Council-Board; and from them receive such Directions as may best agree with the Government of the Place.

*The Duties,
how to be laid.*

112. The King's reasonable Profits are not to be neglected; and may arise from Reservation of moderate Rents and Services; by Customs and Duties upon the Exportation, and Importation of Merchandize: which, for a convenient time after the Plantation begins, should be very easy, to encourage

encourage the Work; but after it is well settled, may be raised to a considerable Proportion. Care must be taken, that, when the Industry of one Man has settled the Work, a new Man, by Insinuation, or Mis-information, may not supplant him; which is the Discouragement of all faithful Endeavours.

VIII.

113. We come now to the last thing proposed; viz. the Court and *Cu- The Court.*
riality.

The King in his own Person, both in respect of his Household or *Kings, how to* Court, and in respect of his whole Kingdom (for a little Kingdom is but *be advised.* as a great Family) must be exemplary: *Regis ad exemplum*, &c. But Kings are Men; and seasonable *Memento's* may be useful: and being discreetly given, cannot but be well taken. And here an Admonition from a dead Author, or a Caveat from an impartial Pen, whose Aim neither was, nor can be taken, as any particular By-Design, will prevail more, and have a better Effect, than a down-right Advice; which perhaps may be mistaken, as if it were spoken magisterially.

114. And in the next Place, the *Prime Minister* must give no just Cause *The Conduct* of Scandal, either by light, vain, or oppressive Carriage. *of the Minister.*

115. The great Officers of the King's Household had need be discreet *Great Officers* and provident Persons, both for his Honour, and for his Profit; they *of the Household.* must look both Ways, else they are but half-sighted: yet in the Choice of them, there is more Latitude left to Affection, than in the Choice of Counsellors, and the great Officers of State, who must always be chose merely out of Judgment; for in them the Publick has a great Concern.

116. The other ministerial Officers in Court, as for Distinction sake *The other ministerial Officers.* they may be termed, also require an Eye upon them. They have usually risen in the Household by Degrees; and it is a noble Way to encourage faithful Service: but the King must not bind himself to a Necessity herein; for then it would be held *ex debito*: neither must he alter it, without an apparent Cause. But to displace any who are in, upon Displeasure, which usually happens upon the Information of some great Man, is, by all means, to be avoided; unless there be a manifest Reason for it.

117. But it seems best to leave the ordering of the Household-Affairs to *The White-Staffs, and Green-Cloth.* the White-Staffs, who are those honourable Persons, to whom it properly belongs, and are answerable to the King for it; and to those other Officers of the Green-Cloth, who are subordinate to them, as a kind of Council, and also a Court of Justice. Tho for the Green-Cloth Law, in the largest Sense, I have no Opinion of it, farther than it is regulated by the just Rules of the Common Laws of England.

118. Towards the Support of his Majesty's own Table, and of the *The Purvey-Princes, and of his necessary Officers, his Majesty has a good Help by ance.* Purveyance, which justly is his Due; and, if justly used, is no great Burden to the Subject: but by the Purveyors, and other under Officers, it is

often abused. In many Parts of the Kingdom it is reduced to a Certainty in Money; and if it be indifferently and discreetly managed, it would be no hard matter to settle it so throughout the whole Kingdom; tho' to be renewed from time to time: for that will be the best and safest, both for King and People.

The Revenues. 119. The King must be put in mind to preserve the Revenues of his Crown, both certain and casual, without Diminution; and to lay up Treasure in Store against a time of Extremity. Empty Coffers give an ill sound; and make the People many times forget their Duty; thinking that the King must be beholden to them for his Supplies.

No Officers to be rewarded with Forfeitures. 120. I by no means think it fit, that the King should reward any of his Servants with the Benefit of Forfeitures, either by Fines in the Court of Star-Chamber, or High-Commission Courts, or other Courts of Justice; or that they should be farm'd out, or bestowed upon any, so much as by Promise, before Judgment given: this would neither be profitable nor honourable.

Masques and publick Entertainments. 121. Lastly; besides Matters of serious Consideration, in the Courts of Princes, there must be times for Recreation and Sports: when there is a Queen, and Ladies of Honour attending her, there must sometimes be Masques, and Revels, and Interludes. And when there is no Queen, or Princes, yet at Festivals, and for the Entertainment of Strangers, or upon such Occasions, they may be proper also. But Care should be taken, that, in such Cases, they be set off more with Wit and Liveliness, than with Cost and wasteful Expence^b.

^b For more upon the whole of this useful Subject, see the Author's *Essays*, *Self. III.*



SUPPLEMENT XIV.

A

PROPOSAL

FOR A

NEW DIGEST

OF THE

LAWS of ENGLAND;

Made to King *JAMES I.**

Ec 2

A

* See Vol. I. pag. 259.

177

THE NEW YORK PUBLIC LIBRARY

SUPPLEMENT XIV

A

PROPOSAL

FOR A

NEW DIGEST

OF THE

LAW OF ENGLAND

Made to King JAMES I.



A

Ecc

See Vol. I. p. 113

li
D
co
g
P
an

of
do
jud
to
son
felf
mon

3
P
The
try
when
tary
Adri
and
Deca
or Ba
g
of
y
d
ains
in eff
whin

" See

APPROPOSAL for a New DIGEST of the LAWS.

1. **A**MONG the Degrees and Acts of heroical Honour, the first or second is the Person and Merit of a *Law-giver*. Princes, who govern well, are Fathers of the People: but if a Father educate his Son well, or allow him liberally while he lives; yet leaves him nothing at his Death, whereby both he and his Descendants may be the better; the Care and Piety of a Father is not here compleat. So Kings, who make a Portion of an Age happy by their good Government; yet, if they do not make Testaments, whereby a Perpetuity of Good may descend to their Country, they are but mortal, and transitory Benefactors.

Kings to perpetuate their People's Good by Laws.

2. If any of the meaner Politicians, whose Talent it is to see the worst of things, shall think, that Laws are but Cobwebs; that good Princes may do well without them; and that bad ones will not value them much; they judge neither well nor wisely. For certainly, good Laws are some Bridle to bad Princes; and as a Wall about Government. And if Tyrants sometimes make a Breach into them, yet they mollify even Tyranny itself; as *Solon's* Laws did the Tyranny of *Pisistratus*: and besides, they commonly rise again, upon the first Advantage of better times.

The Use of Laws, with regard to Princes.

3. Other Means to perpetuate the Memory, and Merits of Sovereign Princes, are inferior to this. The Building of Temples, Tombs, Palaces, Theatres, and the like, are honourable things; and look big upon Posterity: but *Constantine* the Great gave a proper Appellation to such Works, when he call'd *Trajan*, who was a great Builder, by the Name of *Parietaria*, or Wall-Flower; because his Name was upon so many Walls. *Adrian's* Vein was better; for he determined to wrestle a Fall with Time: and going frequent Progresses over all his Empire; whenever he found any Decays of Bridges, or Highways, or Cuts of Rivers and Sewers, or Walls, or Banks, or the like, he gave substantial Orders for their Repair. He also granted Multitudes of Charters and Liberties for the Comfort of decay'd Companies and Corporations: so that his Bounty strove with the Ruins of Time. Yet tho this was an excellent Disposition, it reach'd, in effect, but to the Shell and Outside of a Commonwealth: it avail'd nothing to Virtue or Vice. A bad Man might take the Benefit and Ease of

Laws the best Means of perpetuating the Memory of Princes.

* See below, §. 20.

A PROPOSAL for a New

of the Ways and Bridges, as well as a good one; and a bad People might purchase good Charters. The better Works of Perpetuity in Princes, are doubtless those that wash the Inside of the Cup: such as Foundations of Colleges, and Lectures for Learning, and the Education of Youth; Foundations and Institutions of Orders, and Fraternities, for Nobleness, Enterprize, Obedience, and the like. Yet these too are but like Plantations of Orchards and Gardens, in Spots of Ground, here and there; they do not Till the whole Kingdom, and make it fruitful, like the establishing of good Laws and Ordinances; which renders a whole Nation as a well regulated College or Foundation.

Examples of
the Thing in
History.

4. This kind of Work is rare enough in History, to shew it excellent; yet not so rare as to make it suspected for impossible, inconvenient, or unsafe. *Moses*, who gave Laws to the *Hebrews*, being the Scribe of God, is fitter to be mentioned for Honour to other Law-givers, than to be rank'd among them. *Minos*, *Lycurgus*, and *Solon*, are Examples for the Themes of Grammar-Scholars. For ancient Personages and Characters, as Times go now, become Children again; tho the Parable of *Pindar* is true, that the best of things is *Water*: for common and trivial Things are the best, and are rather despised thro Pride, because they are vulgar, than for any just Cause. Certainly, the Laws of those three Legislators had great Prerogatives: first, the Prerogative of Fame; because they were a Pattern among the *Grecians*; secondly, that of lasting; for they continued longest without Alteration; and thirdly, that of a Spirit of Revival, to be often oppressed, and often restored.

The Kings of
Rome.

5. Among the seven Kings of *Rome*, four were Law-givers: for it is justly observed, that never State was so well swaddled in its Infancy, as the *Roman*, by virtue of their first Kings; which was a principal Cause of the wonderful Growth it afterwards received.

The Decem-
virs.

6. The *Decemvir's* Laws were Laws upon Laws, and not Originals: for they grafted Laws of *Greece* upon a *Roman* Stock of Laws and Customs; but such was their Success, that the *twelve Tables* they compiled were the main Body of the Laws, which framed and wielded the great Body of that State. These lasted long, with some Supplementals, and the *Pretorian Edicts in Albo*; which were, in respect of Laws, as Writing Tables in respect of Brass; the one to be put in and out, whilst the other is permanent. *Lucius Cornelius Sylla* reformed the Laws of *Rome*: for he had three Singularities, which never Tyrant had besides; viz. (1.) that he was a Lawgiver; (2.) that he sided with the Nobility; and, (3.) that he turned private Man, not thro Fear, but Confidence.

Caesar.

7. *Caesar*, long after, desired to imitate him only in the first; for otherwise he relied upon new Men; and for resigning his Power, *Seneca* describes him right: *Caesar soon sheathed his Sword, but never laid it aside*^a. And himself took it upon him, saying in Scorn of *Sylla's* Resignation; *Sylla knew no Letters, he could not dictate*^b. But for the Part of a Law-giver

^a *Caesar Gladium cito condidit, nunquam posuit.*

^b *Sylla nescivit Literas, dictare non potuit.*

Cicero gives him the Attribute; *If you had ask'd Cæsar what he did in the Gown, he would have answered, that he made many excellent Laws*¹. His Nephew *Augustus* trod the same Steps, but with deeper Print, because of his long and peaceful Reign; whereof one of the Poets of his Age says; *That when he had given Peace to the Earth, he bent his Mind to the Consideration of Rights and Privileges, and the enacting of just Laws*².

8. From that time there was such a Race of Wit and Authority, between the Commentaries and Decisions of the Lawyers, and the Edicts of the Emperors, that both Laws and Lawyers were out of Breath. Whereupon *Justinian* in the End recompiled the whole, and made a Body of such Laws as might be wielded; which himself gloriously and truly calls, the raising of a Temple sacred to Justice; built indeed on the former Ruins of Books, as Materials, and some new Constitutions of his own.

9. In *Athens* they had *Sexviri*, as *Æschines* observes, or *Standing-Commissioners*, who watched to see what Laws grew improper for the Times, and what new Law in any Branch crossed a former; and so *ex officio* proposed their Repeal. The Sexviri of Athens.

10. King *Edgar* collected the Laws of this Kingdom; and gave them the Strength of a Faggot bound; whereas they formerly were dispersed. And that was more Glory to him, than his sailing about this Island, with a potent Fleet: which was, as the Scripture says; *the way of a Ship in the Sea*; it vanished, but this lasts.

11. *Alphonso* the Wise, the Ninth of that Name, King of *Castile*, *Alphonso* of compiled the *Digest* of the Laws of *Spain*, entitied the *Siete Partidas*; *Castile*. an excellent Work, which he finished in seven Years. And as *Tacitus* well observes, that the Capitol, tho built in the Beginnings of *Rome*, was yet fit for the great Monarchy that came after; so that Building of Laws suffices for the Greatness of the *Spanish* Empire, which has since ensued.

12. *Lewis XI.* had it at heart to have made one constant Law of *France*, *Lewis XI. of* extracted out of the *Civil Roman Law*, and the Customs of the Provinces, *France*. which are various, and the King's *Edicts*, which, with the *French*, are Statutes. Surely he might have done well, if, as he brought the Crown from *Page*, which is his own Expression, so he had brought his People from *Lackey*; that they might not run up and down for their Laws to the *Civil Law*, the Ordinances, the Customs, the Discretions of Courts, and the Discourses of Philosophers, as they do.

13. King *Henry VIII.* in the twenty-seventh Year of his Reign, was *Henry VIII.* authorized by Parliament, to nominate thirty-two Commissioners, part of *England*. ecclesiastical, and part temporal, to purge the *Canon Law*, and make it agreeable to the Law of God, and the Law of the Land; but it took no effect: for the Acts of that King were commonly rather Proffers and Rumours, than well grounded, or well pursued. But I may err in producing

¹ Cæsar, si ab eo quæreretur, quid egisset in Togâ, Leges respondisset multas & præclarasuisse.

² Pace data Terris, animum ad civilia vertit Jura suum; Legesque tulit justissimus auctor.

A PROPOSAL for a New

so many Examples. For as *Cicero* said to *Cæsar*, so may I say to your Majesty, *Nil vulgare te dignum videri possit*^b. And indeed, the thing well understood, is far from vulgar: for the Laws of most Kingdoms and States, have been like Buildings of many Pieces; and patch'd up from time to time, according to Occasions, without Frame or Model.

The Laws of
England cha-
racterized.

14. For the Laws of *England*; to speak my Opinion, without Partiality either to my Profession or Country; as to the Matter and Nature of them, I hold them wise, just, and moderate: they give to God; they give to *Cæsar*; they give to the Subject what appertains. True, they are as mix'd as our Language; compounded of *British*, *Roman*, *Saxon*, *Danish*, and *Norman* Customs: And surely as our Language is thereby so much the richer; our Laws are likewise by that Mixture the more compleat.

Requires A-
mendment.

15. Nor does this attribute less to them, than those who would have them to have stood the same in all Mutations: for no Tree is so good first set, as by transplanting and grafting. But tho the *Matter* of them be excellent, they certainly require Amendment in point of *Form*; which to reduce and perfect, I hold as one of the greatest Dowries that can be conferred upon this Kingdom.

The Work re-
commended to
King James,
on account of
his Issue.

16. This Work, as for its Excellency, it is worthy of your Majesty's Act and Times; so it has some Circumstance of Propriety agreeable to your Person. God has blessed your Majesty with Posterity; and I am not of the Opinion, that childless Kings are fittest to supply Perpetuity of Generations, by Perpetuity of noble Acts; but contrarywise, that they who leave Posterity, are the more interested in the Care of future Times; that as well their Offspring, as their People, may participate of their Merit.

And learned
Times.

17. Your Majesty is a great Master in Justice and Judicature; and it were a Pity the Fruit of that your Virtue should not be transmitted to succeeding Ages. Your Majesty also reigns in learned Times; the more, no doubt, in regard of your own Perfection in Learning; and by your Patronage thereof. And it has been the Misfortune of Works of this Nature, that the less learned Times have wrought upon the more learned; which now will not be the Case.

The Author's
Proposal to
assist therein.

18. As for myself, the Law was my Profession; to which I am a Debtor: some little Helps I have of other Arts; which may give Form to Matter. And I have now, by God's merciful Chastizement, and by his special Providence, Time and Leisure, to put my Talent, or half Talent, or what it is, to such Exchanges, as may perhaps exceed the Interest of an active Life. Therefore, as in the beginning of my Troubles, I offered your Majesty to take pains in the History of *England*; and in compiling a *Method* and *Digest* of your Laws; I have, in some measure, performed the first^c, which rested only upon myself; and now, in all Humility, renew the Offer of this latter, which will require Help and Assistance; if it shall stand with your Majesty's good Pleasure to employ my Service therein.

19. To

^b That nothing vulgar seems worthy of you.

^c As having now published his History of King Henry VII.

19. To give your Majesty some View of the Work, as I propose it; *A View of the Thing proposed.* permit me to say somewhat of its *Dignity*, its *Safety* and *Convenience*; and lastly, to shew how it may be effected: which will best demonstrate it to be no vast or speculative Thing, but real and feasible.

20. And first, I have nothing to say by way of taking the Laws; *its Dignity.* but speak only by way of *perfecting them*; which is easiest in the best things: for that which is greatly amiss, hardly receives Amendment; but that which has already, to that more may be given. What I shall propose being not as to the Matter of Laws; but only as to the Manner of their Registering, Expression, and Tradition; so as to give them rather Light than any new Nature. Thus then, for the *Dignity* of the Work, I scarce know where to find the like; for surely that Scale, and those Degrees of sovereign Honour, are true and rightly marshalled: First, the Founders of States; then Law-givers; then Deliverers after long Calamities; then the Fathers of their Countries, or just and prudent Princes; and lastly, Conquerors: an Honour not to be received among the rest; except where there is more Addition of Country and Territory to a better Government, than that of the Conquered. Of these, in my Judgment, your Majesty may, with more Truth than Flattery, be entitled to the first; because of your uniting *Britain*, and planting *Ireland*; both which favour of the Founder. What I now propose, may adopt you also to the second. *Law-givers* have been called *Principes perpetui*; as being, after their Decease, still Kings and Rulers, in their Laws. But this Work shining so in itself, needs no Taper.

21. For the *Safety* and *Convenience* thereof; 'tis proper to consider, and *its Safety and Convenience.* answer those Objections, or Scruples, that may arise, or be made against it. The first may be this.

Objection I.

22. That it is a needless thing; that the Law, as it now stands, is in a *Objections.* good State, comparable to any foreign Law; and that it is not possible for the *That the Work is needless.* Wit of Man, in respect of the Frailty thereof, to provide against the Incertainties and Evasions, or Omissions, of Law.

Answer.

23. For the Comparison with foreign Laws; it is in vain to speak of it: *The Law of England thought better than foreign Laws.* for Men will never agree about it. Our Lawyers will be for our municipal Laws; Civilians, Scholars, and Travellers, will be of the other Opinion.

24. But certain it is, that our Laws, as they now stand, are subject to *Inconveniences of the Law of England.* great Incertainties, and Variety of Opinion, Delays and Evasions: whence follows, (1.) great Multiplicity and Length of Suits. (2.) The contentious Person is armed; and the honest Subject wearied and oppressed. (3.) The Judge is more absolute; and in doubtful Cases, has a greater Scope and Liberty. (4.) The Chancery-Courts are more filled; the Remedy of Law being often obscure and doubtful. (5.) The ignorant Lawyer screens

A PROPOSAL for a New

his Ignorance of Law, in frequent and numerous Doubts: and, (6.) Mens Assurances of their Lands and Estates by Patents, Deeds, and Wills, are hollow, and often subject to Question; with many the like Inconveniences.

To know
when the De-
fect is in the
Law.

25. And as all Laws do, more or less, participate of Incertainties, it is a good Rule and Direction, to mark whether the Doubts that arise are only in Cases of ordinary Experience, or in such as happen not every Day: if in the first, impute it to Frailty of Man's Foresight, that cannot reach by Law to all Cases; but if in the latter, be assured there is a Fault in the Law. Of this I say no more, but that (to give every Man his Due) had it not been for Sir *Edward Cook's Reports* (which, tho they may have Errors, and some peremptory and extrajudicial Resolutions, more than are warranted; yet they contain infinite good Decisions, and Rulings over of Cases) the Law by this time had been almost like a Ship without Ballast; for the Cases of modern Experience are fled from those that are adjudged, and ruled in former time.

Penal Laws.

26. But the Necessity of this Work is yet greater in the *Statute Law*. For first, there are as many ensnaring *Penal Laws*, which lie upon the Subject: and if in bad Times they should be awaked, and put in Execution, would grind them to Powder. A learned Civilian interprets the Curse of the Prophet, *It shall rain Snares upon them*, of a Multitude of *Penal Laws*; which are worse than Showers of Hail, or Tempests upon Cattle; for they fall upon Men. There are some *Penal Laws* fit to be retained; but their Penalty is too great: for it is ever a Rule, that any over-great Penalty, besides the Acerbity of it, deadens the Execution of the Law. There is a farther Inconvenience of *obsolete Penal Laws*; for this brings a Gangrene, Neglect, and Habit of Disobedience upon other wholesome Laws, that are fit to be continued in Practice, and Execution: so that our Laws endure the Torment of *Mezentius*; *The Living die in the Arms of the Dead*.

Accumula-
tion of Sta-
tutes.

27. Lastly, there is such an Accumulation of Statutes concerning one Matter, and they so cross and intricate, that the Certainty of Law is lost in the Heap.

Objection II.

28. *That it is a great Innovation; and Innovations are dangerous, beyond Foresight.*

Answer.

The Charge of
Innovation
answered
from Reason,

29. All Purgings and Medicines, either in the civil or natural Body, are *Innovations*: whence this Argument is a Common-place against all noble Re-formations. But the Truth is, that this Work ought not to be termed, or held, an Innovation in the suspected Sense. For those are the Innovations objected and spoken against, that concern the Consciences, Estates, and Fortunes of particular Persons: but this of general Ordinance, pricks not Particulars, but passes silently. Besides, 'tis on the favourable Part; for it

it eases and presses not : and lastly, 'tis rather Matter of Order and Explanation, than of Alteration. Neither is this without Precedent in former ^{and from} Governments. For, as was above observed, the Romans, by their ^{Precedents.} *Decemvirs*, made their *twelve Tables* ; but that indeed was only a new enacting or constituting of Laws, not a registering or recompiling : and they were made out of the Laws of the *Grecians*, not out of their own Customs. In *Athens* they had *Sexviri*, who were Standing Commissioners to watch what Laws became improper for the time ; and what new Law in any respect crossed a former ; and so motion'd their Repeals. *Lewis XI.* of *France* intended to have made one perfect and uniform Law, out of the *Roman Law*, and the provincial Customs of *France*. *Justinian*, by Commissions directed to diverse Persons, learned in the Laws, reduced the *Roman Laws* from Vastness of Volume and a Labyrinth of Incertainties, to that Course of *Civil Law*, which is now in use. And at home, King *Henry VIII.* in the twenty-seventh Year of his Reign, was authorized by Parliament to nominate thirty-two Commissioners ; part ecclesiastical, part temporal, to purge the *Canon Law*, and make it agreeable to the Law of God, and the Law of the Land : and the same was revived in the fourth Year of *Edward VI.* tho neither took effect. And the *Statutes* of King *Edward I.* were fundamental.

Objection III.

30. In thus purging the Course of Common Laws, and Statutes, much Good may be taken away. That much Good may be taken away.

Answer.

31. In all Purging, some good Humours may be discharged ; but that is largely recompensed by lightening the Body of much bad.

Objection IV.

32. Labour were better bestowed, in bringing the Common Laws of England to a Text Law, as the Statutes are ; and setting both of them down in Method, and by Titles. Whether better to form a Text Law.

Answer.

33. 'Tis too long to debate, whether *Lex Scripta*, aut *non Scripta*, a Text Law, or Customs well registred, with received and approved Grounds and Maxims, and judicial Acts and Resolutions, from time to time duly enter'd and reported, be the better Form of declaring and authorizing. It was the principal Oracle of *Lycurgus*, that none of his Laws should be written. Customs are Laws written in living Tables ; and some Traditions the Church does not disauthorize. In all Sciences, they are the soundest that keep close to Particulars ; and I am sure there are more Doubts arise upon our Statutes, which are a Text Law ; than upon the Common Law, which is no Text Law : but however the Question be determined, I dare not advise casting the Law into a new Mould. The Work I propose tends but to

A PROPOSAL for a New

prune and graft the Law; and not to plough up and plant it again: for such a Remove, I should hold indeed for a dangerous Innovation.

Objection V.

That it will
cause the
Law to be
learnt anew.

34. *It will turn the Judges, Counsellors and Students of Law, to School again; and make them at a loss what to hold and advise for Law: and it will impose a new Charge upon all Lawyers, to furnish themselves with new Books of Law.*

Answer.

Answered.

35. The former, 'tis true, would follow, if the Law were new moulded into a Text Law; for then Men must begin anew; and this is one of the Reasons for which I disallow that Course. But in the way I now propose, the entire Body and Substance of the Law will remain, only discharged of idle and unprofitable, or hurtful Matter; and illustrated by Order, and other Helps, towards the better understanding of it, and forming Judgment thereon.

36. For the latter part of the new Charge; 'tis not worth the speaking of, in a Matter of so high Importance: it might have been used of the new Translation of the Bible, and the like Works. Books must follow Sciences, and not Sciences follow Books.

How the Work
is to be effected;

37. The Work itself, or the Recompilement of the Laws of England, is to be effected in this manner. It consists of two Parts; (1.) the Digest, or recompiling of the COMMON LAW; and, (2.) that of the STATUTES. In the first of these, three things are required; (1.) the compiling of a Book *de Antiquitatibus Juris*. (2.) The reducing or perfecting of the Course or Corps of the Common Laws: and, (3.) The composing of certain introductory and auxiliary Books, directing the Study of the Laws.

Viz.
By compiling
a Book con-
cerning the
Antiquities of
the Law.

38. I. For the first of these; all ancient Records in your Majesty's Tower, or elsewhere, containing Acts of Parliament, Lords Patents, Commissions, Judgments, and the like, are to be searched, perused, and weighed: and out of them are to be selected those that are of most worth and weight; and in Order of Time, not of Titles, (for the greater Conformity with the Year-Books) to be set down and registred, rarely in *hæc verba*; but summed with Judgment: not omitting any material part. These are to be used for reverend Precedents; but not for binding Authorities.

A Course of
Law in the
order of Time.

39. II. For the second, which is the main, there is to be made a perfect Course of the Law in *serie Temporis*, or Year-Books, as we call them, from Edward I. to this Day. In the compiling of this Course of Law, or Year-Books, the following Points are to be observed. First, all Cases, which at this Day are clearly no Law, but always ruled to the contrary, should be left out; as they do but swell the Volumes, and season the Wits of Students in a contrary Sense of Law. So likewise all Cases, wherein that is solemnly and long debated, whereof there is now no question at all, are to be enter'd as Judgments only, and Resolutions; but without

without the Arguments, which are now become frivolous. Yet, for the Observation of the deeper sort of Lawyers; that they may see how the Law has alter'd; I advise, that upon the first, in time, of those obsolete Cases, there be a *Memorandum* set, denoting that at this time the Law was thus taken, until such a time, &c.

40. Secondly, *Homonymiæ*, as *Justinian* calls them, that is Cases merely Homonymy of Iteration and Repetition, are to be purged away; and the Cases of Identity, which are best reported and argued, to be retained instead of the rest: the Judgments nevertheless to be set down, every one in time as they are; and with a Quotation or Reference to the Case, where the Point is argued at large: but if the Case consist part of Repetition, part of new Matter, the Repetition is only to be omitted.

41. Thirdly, as to the *Antinomix*, or Cases judged to the contrary; it were too great a Trust to refer the Decision of the Law, either way, to the Judgment of the Compilers of this Work; except there be a current Stream of Judgments of later times: and then I reckon, the contrary Cases among obsolete Cases, of which I spoke before. Nevertheless, such Cases of Contradiction should be especially noted and collected; to the end those Doubts, that have been so long militant, may either by assembling all the Judges in the Exchequer-Chamber, or by Parliament, be reduced to a Certainty. For to do it, by bringing them in question under feign'd Parties, is to be disliked. *Nil habeat Forum ex Scenâ* ^k.

42. Fourthly, All idle Queries, which are but Seminaries of Doubts and Incertainties, should be omitted; and no Queries set down, but of great Doubts, well debated and left undecided, on account of their Difficulty: but all doubting or upstarting Queries, tho touched in Argument, for Explanation, yet were better to die than be preserv'd in the Books.

43. Lastly, Cases reported with too great Prolixity, should be drawn into a more compendious Report; not in the Nature of an Abridgment; but Tautologies and Impertinencies to be cut off. As for Misprinting, and insensible Reporting, which often confound the Students; those will be amended occasionally. But principally, if there be any thing in the Report which is not well warranted by the Record; that also is to be rectified.

44. The Course being thus compiled, it remains only for your Majesty to appoint some grave and sound Lawyers, with an honourable Stipend, to be Reporters^l, for the time to come: and then this is settled for all times.

45. III. The *Auxiliary Books* conducing to the Study and Knowledge of the Law, are three; viz. (1.) *Institutions*: (2.) a Treatise *De Regulis Juris*: and (3.) a better Book, *De Verborum Significationibus*, or Terms of the Law.

46. (1.) For the *Institutions*; there are Books of Introductions of good Worth, especially *Littleton* and *Fitzherbert's Natura Brevium*: but they are no

^k Let not the Courts of Justice copy the Stage.

^l The Author here adds a Note; viz. "This Constitution of Reporters I obtained of the King, after I was Chancellor; and there are two appointed, each with a Stipend of 100 l. a Year."

A PROPOSAL for a New

no way in the Nature of an Institution; the Office whereof is to be a Key and general Preparation to the reading of the *Course*. And principally it ought to have two Properties; the one, that of a perspicuous and clear Method; and the other that of an universal Latitude or Comprehension: whence the Students may have a little Præ-notion of every thing; like a Model towards a great Building.

*A Treatise of
Maxims and
Rules of Law.*

47. (2.) For the Treatise *De Regulis Juris*, I hold it of all things the most important to the Health, and good Institutions of any Laws: it is indeed like the Ballast of a Ship, to keep all upright and stable. But I have seen little in this kind, either in our own, or other Laws, that satisfies me. The naked Rule or *Maxim*, has not the Effect: it must be made useful by good Differences, Ampliations, and Limitations, warranted by good Authorities; and this not by raising up of Quotations and References, but by Discourse and Deducement in a just Treatise. In this I have laboured myself; and will go on with it, if God and your Majesty will give me leave^m. And I assure your Majesty, I have good Hopes, that when Sir Edward Cook's Reports, and my Rules and Decisions, shall come to Posterity; there will be, (whatever is now thought,) Question, who was the greater Lawyer.

*Law-Diction-
ary.*

48. (3.) For the *Books of the Terms of Law*; there is a poor one: but I wish for a better, wherein should be comprised not only the Exposition of the Terms of Law, but of the Words of all ancient Records and Precedents.

*Abridge-
ments.*

49. As for *Abridgements*, I could wish, if it were possible, that none might use them, but such as had read the *Course* first; that they might serve for Repertories to learned Lawyers; and not to make a Lawyer in haste: but since that cannot be, I wish there were a good *Abridgegment* composed of the two that are extant, and in better Order. And so much for the Common Law.

*The Statute-
Law, how to
be recompiled.
The Statutes
concerning
Cases vanish-
ed to be dis-
charged.*

50. IV. The Reforming and Recompiling of the *Statute Law* consists of four Parts. (1.) The *first* is, to discharge the Books of those Statutes, where the Case, by Alteration of time, is vanished; as *Lombards*, *Jews*, *Gaul's Half-pence*, &c. These may yet remain in the Libraries for Antiquities; but should not be reprinted. The like I propose of Statutes long since expired, and clearly repealed; for if the Repeal be doubtful, it must be so propounded to the Parliament.

*The useless
and enslaving
ones to be re-
pealed.*

51. (2.) The *next* is, to repeal all Statutes, which are sleeping and not of use; but yet enslaving and in force. And here it will perhaps be some-
times

The Author published a Specimen of a Treatise of this kind, and dedicated it to Queen Elizabeth; with a Preface containing part of the Scheme, here laid down, for the Amendment and Recompiling of the Laws of England. It is entitled, *A Collection of some principal Rules and Maxims of the Common Law, with their Latitude and Extent*. This Piece consists of twenty-five short Rules, or *Maxims*, of Law; explained, exemplified, and applied, in the Language peculiar to the Law; so as designedly to exclude all Readers, but those of the Profession. The Author published only these twenty-five first, as a Taste; designing to have followed them with a much larger Number; having, as he tells us, collected three hundred for the purpose: but the rest never appeared.

times requisite to substitute a more reasonable Law instead of them, agree-
ble to the time ; in others a simple Repeal may suffice.

52. (3.) The *third* is, that the Grievousness of the Penalty in many Statutes be mitigated ; tho the Ordinances stand.

*The Penalties
of some to be
mitigated.*

53. (4.) The *last* is, the reducing of concurrent Statutes, heaped one up-
on another, to a single, clear, and uniform Law. Towards this there has been
already, upon my Motion, and your Majesty's Direction, a great deal of
good Pains taken ; my Lord *Hobart*, myself, Sergeant *Finch*, Mr. *Heneage*
Finch, Mr. *Noye*, Mr. *Hackwell*, and others, whose Labours being of a
great Bulk, 'tis not fit now to trouble your Majesty with any farther Parti-
culars therein ; only by this, you may perceive the Work is already ad-
vanced.

*Concurrent
Statutes to be
reduced.*

54. But because this part, which concerns the *Statute Laws*, must of Ne-
cessity come to Parliament ; and the Houses will best like what themselves
guide, and the Persons themselves employ ; the way were to imitate the
Precedent of the Commissioners for the Canon Laws in 27 *Hen. VIII.* and
4 *Edw. VI.* and the Commissioners for the Union of the two Realms, *primo*
of your Majesty ; and so to have the Commissioners named by both Houses ;
yet not with a precedent Power to conclude, but only to prepare and pro-
pound to Parliament.

*The whole to
be a Parlia-
mentary Act.*

55. This is the best way, I conceive, of accomplishing so excellent a
Work ; of Honour to your Majesty's Times, and of Good to all Times :
which I submit to your Majesty's better Judgment ^a.

^a For the Reasons why no greater Progress was made in this Undertaking, see the Au-
thor's Letter to Bishop *Andrews* ; *Supplem. V. Sect. II. ad finem.* See also, the *De Aug-
ment. Scientiar.* pag. 242, &c.



times requisite to illustrate a more responsible law instead of them, agree-
ble to the time; in others a simple English may suffice.

51. (3.) This book is, that the Government of the Country in many
stances be managed: the Ordinances, and the

52. (4.) The 3d is, the reducing of concurrent Statutes, repeated one up-
on another, to a single, clear, and uniform Law. To which end there has been

already, upon my Motion, and your Majesty's Direction, a great deal of
good pains taken; my Lord Abbot, my Lord Sergeant, Mr. Wren,

Mr. New, Mr. Littleton, and others, whose Labour being of a
great use, it is not fit now to trouble your Majesty with any further Part.

53. But, in order to this, you may perceive the Work is already
very far advanced.

54. But because this part, which concerns the Statute Law, must of Ne-
cessity come to Parliament; and the Houses will not like to receive

55. the Statutes themselves; the way were to insert the
substance of the Statutes in the Canon Law in a Book VIII. and

56. in the Commission for the Union of the two Houses, to
be made by your Majesty; and to have the Commissions made by both Houses;

57. and to have a precedent Power to continue, but only to prepare and pro-
ceed to Parliament.

58. This is the best way, I conceive, of accomplishing to excellent a
purpose, in Honour to your Majesty's Time, and of Good to all Times.

59. I submit to your Majesty's better Judgment.

60. For the Reasons why no greater Progress was made in this Undertaking, the first
of the Statutes, and the first of the Statutes, the first of the Statutes.

61. But the Statutes, the first of the Statutes, the first of the Statutes.

62. But the Statutes, the first of the Statutes, the first of the Statutes.

63. But the Statutes, the first of the Statutes, the first of the Statutes.

64. But the Statutes, the first of the Statutes, the first of the Statutes.

65. But the Statutes, the first of the Statutes, the first of the Statutes.

66. But the Statutes, the first of the Statutes, the first of the Statutes.

67. But the Statutes, the first of the Statutes, the first of the Statutes.

68. But the Statutes, the first of the Statutes, the first of the Statutes.

69. But the Statutes, the first of the Statutes, the first of the Statutes.

70. But the Statutes, the first of the Statutes, the first of the Statutes.

71. But the Statutes, the first of the Statutes, the first of the Statutes.

72. But the Statutes, the first of the Statutes, the first of the Statutes.

73. But the Statutes, the first of the Statutes, the first of the Statutes.

74. But the Statutes, the first of the Statutes, the first of the Statutes.

75. But the Statutes, the first of the Statutes, the first of the Statutes.

76. But the Statutes, the first of the Statutes, the first of the Statutes.

77. But the Statutes, the first of the Statutes, the first of the Statutes.

78. But the Statutes, the first of the Statutes, the first of the Statutes.

79. But the Statutes, the first of the Statutes, the first of the Statutes.

SUPPLEMENT XV.

A

HISTORY

OF THE

NATURE, USE,

AND

PROCEEDINGS,

OF THE

LAWS of ENGLAND.

VOL. II.

Gg

PRE-

SUPPLEMENT XV.

A

HISTORY

OF THE

NATURAL USE

AND

PROCEEDINGS

OF THE

LAWYERS OF ENGLAND.

PRINTED

BY

W. H. & C.

P R E F A C E.

THE following Piece is a familiar Account of the Nature, Use, and Proceedings of many of the Laws of England. It seems chiefly intended for the Information of such as do not profess the Law; or make that their particular Study. 'Tis no finished Work; nor continued thro all the Branches of the Law. The Author was discouraged from prosecuting the great Design he had formed of Digesting, Amending, and Reducing the Law; by finding it an Undertaking that required the Assistance of more Hands than his own. And, as the Body of the Laws of England, has rather received Additions and Explanations, than Alterations, in later Times; the following History will not be found to have out-liv'd its Use: for it contains Accounts of numerous Laws, not only at present in force; but likely to continue so for Ages.



G g 2

A H I S.

PREFACE

THE following Piece is a familiar account of the Nature, Use, and Proceedings of many of the Laws of England. It seems chiefly intended for the Information of such as do not profess the Law; or make that their particular Study. The Author was assisted from all the Branches of the Law, by finding it as Consulting that profession for great Part; by finding it as Consulting that and Revising the Law, by finding it as Consulting that against the Right of some Hands than his own. And as the Body of the Laws of England, has rather received Alterations and Explanations, than Abrogation, in later Times; the following History will not be found to have omitted its Use; for it contains Accounts of numerous Laws, not only at present in force; but likely to continue so for Ages.



G G 2 A HIS

HISTORY

OF THE

NATURE, USE, &c.

SECT. I.

The PROCEDURE of the LAW in MATTER of the PEACE.

THE *Use of the Law* consists principally in three Things; *Use of the Law, where-
in it consists.*
viz. (1.) The securing Mens Persons from Death and Violence. (2.) The disposing of the Property of their Goods and Lands. And, (3.) The Preservation of their Names, from Shame and Infamy.

2. (1.) For the *Safety of Mens Persons*; the *Law* provides that any Man *Surety to keep the Peace.*
standing in Fear of another, may take his Oath, before a Justice of Peace, that he stands in fear of his Life; and the Justice shall compel the other to be bound, with Sureties, to keep the Peace.

3. If any Man beat, wound, or maim another; or give false, scandalous Words, that may touch his Credit; the Law grants thereupon an *Action for Slander, Battery, &c.*
Action of the Case, for the Slander of his good Name; and an Action of Battery; or an Appeal of Maim, by which Recompence shall be recovered, to the Value of the Hurt, Damage, or Danger.

4. If any Man kill another, with Malice, the Law gives an Appeal to *Appeal of Murder given to the next of kin.*
the Wife of the Deceased, if he had any; or to the next of kin, that is Heir in Default of a Wife; by which Appeal the Defendant convicted is to suffer Death, and to lose all his Lands and Goods: but if the Wife or Heir

Heir will not sue, or be compounded withal; yet the King is to punish the Offence by Indictment or Presentment of a lawful Inquest and Trial, before competent Judges; whereupon the Person being found guilty, he is to suffer Death, and to lose his Lands and Goods.

Man-slaughter, when a Forfeiture of Goods, and when not.

5. If one Man kill another upon a sudden Quarrel, this is *Man-Slaughter*; for which the Offender must die, except he can read; and if he can read, yet he must lose his Goods, but not Lands.

6. If a Man kill another in his own Defence, he shall not lose his Life, nor his Lands; but his Goods; except the Person slain was the Assailant, to kill, rob, or disturb the other by the High-way side, or in his own House; and then he shall lose nothing.

Felo de se.

7. And if a Man kill himself, all his Goods and Chattels are forfeited; but not Lands.

Felony by Mischance.

8. If a Man kill another by Misfortune, as by shooting an Arrow at a Butt or Mark, casting a Stone over a House, or the like; this is the Loss of Goods and Chattels, but not of Lands, nor Life.

Deodand.

9. If a Horse, a Cart, a Beast, or any other thing, kill a Man; the Horse, Beast, or other thing is forfeited to the Crown, and is call'd a *Deodand*; and usually granted and allowed by the King to the Bishop Almoner, as Goods are of those that kill themselves.

Maiming.

10. The cutting out of a Man's Tongue, or putting out his Eyes maliciously, is *Felony*; for which the Offender is to suffer Death, and lose his Lands and Goods.

Punishment for Example.

11. But as all Punishment is for Example, 'tis proper to see the Means whereby Offenders are brought to Punishment. And first for Matter of the Peace, the ancient Laws of *England*, planted here by the Conqueror, were, that there should be Officers of two sorts in all Parts of this Kingdom, to preserve the Peace; viz. (1.) *Constabularij Pacis*; and (2.) *Conservatores Pacis*.

The Office of Constables of the Peace.

12. The Office of the *Constable* was, to arrest the Parties he had seen breaking the Peace, or in Fury ready to break the Peace; or was truly inform'd by others, or by their own Confession, that they had newly broken the Peace; which Persons he might imprison in the Stocks, or in his own House, as his or their Quality required; till they had become bound with Sureties to keep the Peace: which Obligation from thenceforth was to be sealed and delivered to the *Constable*, for the Use of the King. And the *Constable* was to send to the King's Exchequer or Chancery, from whence Process should be awarded, to levy the Debt; if the Peace were broken.

13. But the *Constable* could not arrest any Person, or make any one put in Bond, upon Complaint of threatening only; except they had seen them breaking the Peace, or had come newly after the Peace was broken. These *Constables* also were to keep watch about the Town, for apprehending Rogues, Vagabonds, Night-walkers, Eves-droppers, Scouts, and such

* See hereafter, Sect. II. §. 30.

go arm'd. They ought likewise to raise *Hue and Cry* against Murderers, Man-slayers, Thieves, and Robbers.

14. Of this *Office of Constable* there were *High-Constables*, two of every Hundred; *Petty Constables*, one in every Village: they were in ancient Time all appointed by the Sheriff of the Shire yearly, in his Court, call'd the *Sheriff's Tourne*; and there they received their Oath. But at this Day they are appointed, either in the Law-day of that Precinct, wherein they serve, or else by the *High-Constable* in the Sessions of the Peace.

15. The Authority of Constables was granted upon the ancient Laws and Customs of this Kingdom, practis'd long before the Conquest; and intended and instituted for the Conservation of the Peace, and repressing all manner of Disturbance and Hurt of the People; and that as well by way of Prevention as Punishment: but yet so, that they have no judicial Power, to hear and determine any Cause; but only a ministerial Power.

16. The Origin of the Office of High-Constable is more obscure; for tho the High-Constable's Authority has the more ample Circuit, he being over the Hundred, and the Petty-Constable over the Village; yet I do not find that the Petty-Constable is subordinate to the High-Constable; or to be ordered or commanded by him: therefore I doubt the High-Constable was not *ab origine*; but that when the Business of the Country increased, the Authority of the Justices of Peace was enlarged by diverse Statutes; then, for Conveniency sake, the Office of High-Constable grew in Use, for the receiving the Commands and Precepts from the Justices of Peace; and distributing them to the Petty-Constables. And in token of this, the Election of High-Constables, in most parts of the Kingdom, is by the Appointment of the Justices of Peace; whereas the Election of the Petty-Constable is by the People.

17. But there are two things to which the Office of Constable has special Relation, and which of Necessity, or at least by a kind of Congruity, must precede the Jurisdiction of that Office; *viz.* (1.) The Division of the Territory, or gross of the Shires into Hundreds, Villages, and Towns; for the High-Constable is Officer over the Hundred; and the Petty-Constable is over the Town or Village. (2.) The Court-Leet, to which the Constable is a proper Attendant and Minister; for there the Constables are chosen by the Jury; there they are sworn; and there that part of their Office, which concerns Information, is principally to be perform'd: for the Jury is to present Offences; and Offenders are chiefly to take light from the Constables of all Matters of Disturbance and Nuisance of the People, which they, in respect of their Office, are presumed to have best, and most particular Knowledge of. *

18. The *first* End of the Institution of the Court-Leet, is, to take the ancient Oath of Allegiance of all Males above the Age of twelve Years. The *second*, to enquire of all Offences against the Peace; and for those that are against the Crown and Peace both, to enquire of only, and to certify to the Justices of Goal-Delivery; but those that are against the Peace simply, they are to enquire and punish.

The

* See hereafter, Sect. IX.

19. The *third* is, to enquire of, punish, and remove all publick Nufances and Grievances, concerning Infection of Air, Corruption of Victuals, Ease of Chaffer, and Contract of all other Things that may hurt or grieve the People in general, in their Health, Quiet and Welfare.

20. And to these three *Ends*, as Matters of Policy subordinate, the Court-Leet has Power to call upon the Pledges that are taken for the good Behaviour of the Resiants, that are not Tenants; and to enquire of all Defaults of Officers, as Constables, Ale-Tasters, and the like: and likewise for the Choice of Constables, as aforesaid.

*Jurisdiction
of Court-
Leets.*

21. The Jurisdiction of these Leets ever remains in the King, and is in that Respect exercised by the Sheriff in his *Tourne*; which is the grand Leet, granted over to the Subjects; but 'tis still the King's Court.

*Election of
Constables.*

22. The Election of the *Petty-Constable* is, at the Court-Leet by the Inquest that makes the Presentments; the Election of the Head-Constables is by the Justices of Peace at their Quarter-Sessions. The Office is annual, except they be removed. They are now Men of inferior, yea, of base Condition; which is a mere Abuse or Degenerating from the first Institution: for the Petty-Constables in Towns ought to be of the better sort of Resiants in the said Town; save that they should not be aged or sickly; but Men of able Bodies, in respect of the keeping Watch and Toil of their Place; neither ought they to be in any Man's Livery: and the High-Constables ought to be of the ablest sort of Freeholders, and of the substantiallest sort of Yeomen, next to the Degree of Gentlemen; but they ought to be such as are not incumbred with any other Office, as Mayor of a Town, Under-Sheriff, Bailiff, &c.

*Are to act
Gratis.*

23. They have no Allowance; but are bound by Duty to perform their Offices *Gratis*: which may the rather be endured, because it is but annual; and they are not tied to keep or maintain any Servants or Under-ministers, because every one of the King's People are bound to assist them.

*Are punish-
able for Re-
fusal.*

24. Upon Complaint made of his Refusal to any one Justice of Peace, the said Justice may bind him over to the Sessions; where if he cannot excuse himself by just Allegation, he may be fined and imprisoned for his Contempt.

*The Power of
Constables.*

25. The Authority of Constables, as it is substantive, and of itself; or substituted, and bound to the Warrants and Commands of the Justices of Peace; so again it is original, or additional: for either it was given them by the Common Law, or else annexed by diverse Statutes. And as for subordinate Power, wherein the Constable is only to execute the Commands of the Justices of Peace; and likewise the additional Power, which is given by diverse Statutes; 'tis hard to comprehend them in any Brevity: for they correspond to the Office and Authority of the Justices of Peace, which are very large; and are created by the Branches of several Statutes; which are things of different Natures. But for the original and substantive Power of a Constable, it may be reduced to three Heads; *viz.* (1.) Matter of Peace only; (2.) Matter of Peace and the Crown; and (3.) Matter of Nufance, Disturbance and Disorder; altho not accompanied with Violence and Breach of the Peace.

26. For

26. For pacifying of Quarrels begun, the Constables may, upon hot Words given, or likelihood of Breach of Peace to ensue, command them, in the King's Name, to keep the Peace, and depart, and forbear: and so he may, where any Fray is made, part the same, and keep the Parties asunder; and arrest and commit the Breakers of the Peace, if they will not obey; and call Power to assist him for the same purpose.

27. For the Punishment of Breach of Peace past, the Law is very tender and sparing in giving any Authority to Constables; because they have no judicial Power: and the Use of the Office is rather for preventing or staying Mischief, than for punishing Offences; for in that part he is rather to execute the Warrants of the Justices; or when any sudden Matter arises upon his View, or notorious Circumstances, to apprehend Offenders, and carry them before the Justices of Peace; and generally to imprison in like Cases of Necessity, where the Case will not endure the present carrying of the Party before the Justices.

28. For Matters of the Crown, the Office of Constable consists chiefly *In Matters of the Crown.* in these four Parts: (1.) Arrest; (2.) Search; (3.) Hue and Cry; and, (4.) Seizure of Goods. All which the Constable may perform of his own Authority, without any Warrant of the Justices of Peace.

29. (1.) For, *first*, if any Man will lay Murder or Felony to another's Charge, or do suspect him of Murder or Felony, he may declare it to the Constable; and the Constable ought, upon such Declaration or Complaint, to carry him before a Justice: and if by common Voice or Fame any Man be suspected, the Constable of Duty ought to arrest him, and bring him before a Justice; tho there be no other Accusation or Declaration.

30. (2.) If any House be suspected of receiving or harbouring any Felon; the Constable, upon Complaint, or common Fame, may search.

31. (3.) If any one fly upon the Felony, the Constable ought to raise *Hue and Cry*; and search his Goods, and keep them safe without impairing, and to inventory them in the Presence of honest Neighbours.

32. (4.) For Matters of common Nuisance and Grievance, they are of *In Matters of Nuisance and Grievance.* a very variable Nature, according to the several Comforts which Man's Life and Society requires, and the Contraries which infest the same.

33. In all which, be it Matter of corrupting Air, Water, or Victuals, or stopping, straitening, or endangering Passage; or general Deceits in Weights, Measures, or Sizes; or counterfeiting Wares, and things vendible; the Office of the Constable is to give, as much as in him lies, Information of them, and of the Offenders in Leets, that they may be presented: but because Leets are kept only twice in the Year, and many of these things require present or speedy Remedy; the Constable, in things of notorious and vulgar Nature, ought to forbid and repress them in the mean time.

34. Constables are for their Contempt to be fined and imprisoned by the *Constables, how punishable.* Justices in their Sessions.

35. The Constables Oath runs thus. "You shall swear that you shall well and truly serve the King, and the Lord of this Law-day; *The Oath of Constables.*

“and you shall cause that the Peace of our Sovereign Lord the King shall be well and duly kept, to your Power : and you shall arrest all those that you see committing Riots, Debates, and Affrays, in Breach of Peace : and you shall well and duly endeavour yourself, to your best Knowledge, that the Statutes of *Winchester* for Watch, Hue and Cry, and the Statutes made for the Punishment of sturdy Beggars, Vagabonds, Rogues, and other idle Persons coming within your Office, be truly executed, and the Offenders punished : and you shall endeavour, upon Complaint made, to apprehend Barratters and riotous Persons making Affrays ; and likewise to apprehend Felons : and if any of them make Resistance with Force, and Multitude of Mis-doers, you shall make Out-cry, and pursue them till they be taken ; and shall look unto such Persons as use unlawful Games : and you shall have regard to the Maintenance of Artillery : and you shall well and duly execute all Process and Precepts sent to you from the Justices of Peace of the County : and you shall make good and faithful Presentments of all Blood-sheds, Out-crys, Affrays, and Rescues made within your Office : and you shall well and duly, according to your Power and Knowledge, do that which belongs to your Office of Constable to do, for this Year to come. So help, &c.”

The Authority of Constables.

36. The Authority of the two Constables is the same in substance ; differing only in extent : the Petty-Constable serving only for one Town, Parish, or Borough ; the Head-Constable serving for the whole Hundred. Neither is the Petty-Constable subordinate to the Head-Constable for any Command that proceeds from his own Authority ; but it is used, that the Precepts of the Justices be delivered to the High-Constables, who being few in Number, may better attend the Justices ; and then the Head-Constables, by virtue thereof, make their Precepts over to the Petty-Constables.

Deputy-Constables.

37. In Case of Necessity the Constable may appoint a Deputy, or in Default thereof, the Steward of the Court-Leet may ; which Deputy ought to be sworn before the said Steward.

Summary of the Constable's Office.

38. In fine, the Office of Constables consists wholly in these three things ; viz. (1.) The Conservation of the Peace ; (2.) the serving of Precepts and Warrants of the Justices ; and, (3.) their Attendance for the Execution of Statutes.

SECT.

S E C T. II.

The OFFICE of JUSTICES of the PEACE.

1. **T**HE Sheriff's Tourne is a Court very ancient, incident to his Office. At the first it was erected by the Conqueror, and called the King's Bench; appointing Men skilled in the Law to execute Justice, as Substitutes to him, in his Name; which Men are to be called *Justiciarij ad placita coram Rege assignati*: one of them being *Capitalis Justiciarius*, call'd to his Fellows; the rest in Number as pleases the King; of late but three *Justiciarij* were held by Patent. In this Court every Man above twelve Years of Age was to take his Oath of Allegiance to the King; if he were bound, then his Lord to answer for him. In this Court the Constables were appointed, and sworn; Breakers of the Peace punished by Fine and Imprisonment; the Parties abused or hurt recompensed upon Complaints of Damages; all Appeals of Murder, Maim, or Robbery, decided; Contempts against the Crown, publick Annoyances against the People, Treasons, Felonies, and all other Matters of Wrong betwixt Part and Party for Lands and Goods.

The King's Bench first instituted, and its Jurisdiction.

2. But the King seeing the Realm grow daily more and more populous, and that this one Court could not dispatch all; first ordain'd that his Marshal should keep a Court, for Controversies arising within the Verge, which is within twelve Miles of the chiefeft Tunnel of the Court: which only eas'd the King's Bench, in Matter concerning Debts, Covenants, and such like, of those of the King's Household alone; never dealing in Breaches of the Peace, or concerning the Crown by any other Persons, or any Pleas of Lands.

Court of Marshal, and its Jurisdiction.

3. The King, for farther Ease, having divided this Kingdom into Counties, and committing the Charge of every County to a Lord or Earl; directed that those Earls, within their Limits, should look to the Matter of the Peace, take charge of the Constables, reform publick Annoyances, swear the People to the Crown, and take Pledges of the Freemen for their Allegiance; for which purpose the County kept a Court once a Year, called the Sheriff's Tourne; at which all the County, except Women, Clergy, Children under twelve, and not aged above sixty, appeared to give or renew their Pledges for Allegiance. And the Court was call'd, *Curia franci Plegij*, a View of the Pledges of Freemen; or, *Turnus Comitatus*.

Sheriff's Tourne instituted.

4. At which Meeting or Court there happened, by occasion of great Assemblies, much Bloodshed, Scarcity of Provisions, Mutinies, and the like Mischiefs, incident to the Congregations of People; by which the King was moved to allow a Subdivision of every County into Hundreds; and every Hundred to have a Court; whereto the People of every Hun-

Subdivision of the County-Court into Hundreds.

dred should be assembled twice a Year, for Survey of Pledges, and use of that Justice, which was formerly executed in that grand Court for the County; and the Count or Earl appointed a Bailiff under him, to keep the Hundred-Court.

The Charge of the County committed to the Sheriff.

5. But in the end, the Kings of this Realm found it necessary to have all Execution of Justice immediately from themselves, by such as were more bound than Earls to that Service, and readily subject to Correction for their Negligence or Abuse; and therefore took to themselves the appointing of a Sheriff yearly in every County, calling them *Vicecomites*, and to them directed such Writs and Precepts for executing necessary Justice in the County; committing to the Sheriff *Custodiam Comitatus*; by which the Earls spared their Toil and Labour; and that was laid on the Sheriffs. So that now the Sheriff does all the King's Business in the County: and this is now called the Sheriff's Tourne; that is to say, he is Judge of this grand Court for the County; and also of all Hundred-Courts not given away from the Crown.

The Sheriff Judge of all Hundred Courts.

County-Court kept monthly.

6. He has another Court, called *County-Court*, belonging to his Office, wherein Men may sue monthly for any Debt or Damages under 40*l.* and may have Writs to replevy their Cattle distrained and impounded by others; and there try the Cause of their Distress: and by a Writ called *Justicies*, a Man may sue for any Sum. And in this Court, the Sheriff, by a Writ called an *Exigent*, proclaims Men sued in Courts above to render their Bodies, or else they are out-law'd.

The Office of the Sheriff.

7. The Sheriff serves the King's Writs of Process, be they Summons, or Attachments, to compel Men to answer the Law; and all Writs of Execution of the Law, according to Judgments of superior Courts, for taking Mens Goods, Lands, or Bodies, as the Cause requires.

Hundred Courts to whom first granted.

8. The Hundred-Courts were most of them granted to religious Men, Noblemen, and others of great Place: many Men also of good Quality have obtained by Charter, and some by Usage within Manors of their own, Liberty of keeping Law-days; and there to use Justice appertaining to a Law-day.

Lord of the Hundred to appoint two High-Constables.

9. The Lord of the *Hundred-Court* is to appoint two *High-Constables* of the Hundred; and also to appoint in every Village a Petty-Constable, with a Tithing-Man, to attend in his Absence, and to be at his Command, when he is present, in all Services of his Office, for his Assistance.

10. There have been, by Use and Statute-Law, (besides the surveying of the Pledges of Freemen, giving the Oath of Allegiance, and making Constables,) many Additions of Powers and Authority given to the Stewards of Leets and Law-days, to be practised in their Courts: as for Example; they may punish Inn-keepers, Victuallers, Bakers, and Tradesmen of all sorts, selling with Underweights or Measures, or at excessive Prices, or things unwholesome, or ill-made, in Deceit of the People. They may punish those that stop, straiten, or annoy the High-ways; or do not, according to the Provision enacted, repair or amend them; or divert Water-courses, or destroy Fish, or use Engines or Nets to take Deer, Conies,

Sect. II. JUSTICES of the PEACE.

237

Conies, Pheasants, or Partridges, or build Pidgeon-houses; except he be Lord of the Manor, or Parson of the Church. They may also take Presentment upon Oath of the twelve sworn Jury before them, of all Felonies; but they cannot try the Malefactors; only they must by Indenture deliver over those Presentments of Felony to the Judges, when they come their Circuits into that County. What Matters they enquire of in the Leets and Law-days.

11. All the Courts before-mentioned are in Use, and exercised as Law at this Day, concerning the Sheriffs Law-days, and Leets, and the Offices of High-Constables, Petty-Constables, and Tithing-men; tho with some farther Additions by Statute-Laws, laying Charge upon them for Taxation for the Poor, for Soldiers, and the like, and dealing without Corruption, and the like.

12. *Conservators of the Peace* were in ancient Times certain, and assigned by the King to see the Peace maintained; they were called to the Office by the King's Writ, to continue for Term of their Lives, or during the King's Pleasure. Conservators of the Peace at the King's Pleasure.

13. For this Service, Choice was made of the best Men of Calling in the Country, and but few in the Shire. They might bind any Man to keep the Peace, and to good Behaviour, by Recognizance to the King with Sureties; and they might, by Warrant, send for the Party, directing their Warrant to the Sheriff, or the Constable, to arrest the Party, and bring him before them. This they did when Complaint was made by any one, that he stood in fear of another, and so took his Oath; or else, where the Conservator himself did, without Oath or Complaint, see the Disposition of any Man inclin'd to Quarrel, and Breach of the Peace, or to misbehave himself in some outrageous manner of Force or Fraud: there at his own Discretion, he might send for such a Party, and make him find Sureties of the Peace, or of his good Behaviour, as he should see Cause; or else commit him to the Goal, if he refused. Their Office.

14. The Judges of either Bench in *Westminster*, Barons of the Exchequer, Master of the Rolls, and Justices in Eyre, and Assizes, in their Circuits, were all, without Writ, Conservators of the Peace in all Shires of England, and continue to this Day. Conservators of the Peace by virtue of their Office.

15. But now Conservators of the Peace are out of use; and in lieu of them there are ordained Justices of the Peace, assign'd by the King's Commissions in every County, which are moveable at the King's Pleasure; but the Power of placing and displacing Justices of the Peace, is by use delegated from the King to the Chancellor. Justices of the Peace ordained instead of Conservators.

16. That there should be Justices of the Peace by Commissions, was first enacted by a Statute made 1 *Edw. III.* and their Authority augmented by many Statutes made since in every King's Reign.

17. They are appointed to keep four Sessions every Year; that is, every Quarter, one. These Sessions are a Sitting of the Justices, to dispatch the Affairs of their Commissions. They have Power to hear and determine in their Sessions, all Felonies, Breaches of the Peace, Contempts and Trespases, so far as to fine the Offender to the Crown; but not to award Recompence to the Party grieved. Their Sessions and Office.

18. They

18. They are to suppress Riots and Tumults; to restore Possessions forcibly taken away; to examine all Felons apprehended and brought before them; to see impotent poor People, or maim'd Soldiers, provided for, according to the Laws; and Rogues, Vagabonds, and Beggars punished. They are both to license and suppress Ale-houses, Badgers of Corn and Victuals, and to punish Forestallers, Regraters, and Engrossers.

19. Thro these, in effect, run all the County Services to the Crown; as Taxations of Subsidies, mustering of Men, arming them, and levying Forces, by a special Commission from the King. Any of these Justices, upon Oath taken by a Man that he stands in fear that another will beat, or kill him, or burn his House, are to send for the Party, by Warrant of Attachment, directed to the Sheriff or Constable, and then to bind the Party with Sureties, by Recognizance to the King, to keep the Peace; and also to appear at the next Sessions of the Peace; at which next Sessions, when every Justice of Peace has therein delivered all his Recognizances so taken, the Parties are called, and the Cause of binding to the Peace examined; and both Parties being heard, the whole Bench is to determine, as they see Cause, either to continue the Party so bound, or to discharge him.

Quarter-Sessions held by the Justices of the Peace.

20. The Justices of Peace in their Sessions are attended by the Constables and Bailiffs of all Hundreds, and Liberties, within the County; and by the Sheriff, or his Deputy, to be employ'd as Occasion serves in executing the Precepts and Directions of the Court. They proceed thus: The Sheriff summons twenty-four Free-holders, discreet Men, of the said County, whereof some sixteen are elected and sworn, and have their Charge to serve as the Grand Jury. The Party indicted is to traverse the Indictment, or else to confess it, and so submit himself to be fined as the Court shall think fit; except the Punishment be certainly appointed, as it often is, by special Statutes.

The Authority of the Justices of Peace out of Sessions.

21. The Justices of Peace are many in every County; and to them are brought all Traitors, Felons, and other Malefactors, directly upon their being first apprehended; and that Justice to whom they are brought examines them, and hears their Accusation, but judges not upon it; only if he find the Suspicion light, he takes Bond, with Sureties, of the Accused, to appear either at the next Assizes, if it be a Matter of Treason or Felony; or else at the Quarter-Sessions, if it be concerning Riot or Misdemeanor, or other small Offence. He also then binds those to appear that give Testimony, and prosecute the Accusation, and all the Accusers and Witnesses, and so sets the Party at large. And at the Assizes or Sessions he certifies the Recognizances taken of the Accused, Accusers and Witnesses; who being there, are call'd; and appearing, the Cause of the Accused is debated, according to Law, for his clearing or condemning.

22. But if the Party accused seem, upon pregnant Matter in the Accusation, and to the Justice, guilty, and the Offence be heinous, or the Offender taken with the Manner; then the Justice is to commit the Party, by his Warrant call'd a *Mittimus*, to the Goaler of the common Goal of the County, there to remain till the Assizes. And then the Justice is to certify

fy his Accufation, Examination, and Recognizance taken for the Appearances and Profecution of the Witneffes ; fo that the Judges may, when they come, readily proceed with him as the Law requires.

23. The Judges of the Affize, as they are in Place of the ancient Judges ^{Judges of Affize in the} in Eyre, call'd *Justiciarij Itinerantes*, which, in the prime Kings, after the Conqueft, till *Henry* the Third's Time efpecially, and after in lefs Meafure, even to *Richard* the Second's Time, executed the Juftice of the Realm. They began thus. The King, unable to difpatch Bufinefs in his own Perfon, erected the Court of King's Bench ; and that being unable to receive all, nor proper to draw the People all to one Place ; there were ordained Counties, and the Sheriff's Tourns, Hundred-Courts, and particular Leets, and Law-days, as before-mentioned ; which dealt only with Crown Matters for the Publick ; but not with the private Titles of Lands, or Goods, nor the Trial of grand Offences of Treafons and Felonies : but all the Counties of the Realm were divided into fix Circuits ; and two learned Men, well read in the Law of the Realm, were affigned, by the King's Commiffion, to every Circuit ; and to ride twice a Year thro' thofe Shires allotted to that Circuit ; making Proclamation before-hand, a convenient time in every County, of the Day of their coming, and Place of their fitting ; to the end that People might attend them in every County of that Circuit. They were to ftay three or four Days in every County ; and during that time, all Caufes of that County were brought before them by the Parties grieved, and all Prifoners of the faid Goal, in every Shire ; and whatever Controverfies arofe concerning Life, Lands, or Goods.

Place of the ancient Judges in Eyre.

24. The Authority of thefe Judges in Eyre, is in part tranflated by *The Authority of the* Act of Parliament to the Juftices of Affize, which are now the Judges of Circuits ; and they to ufe the fame Courfe that Juftices in Eyre did, to proclaim their coming every half Year, and the Place of their fitting.

Judges in Eyre tranflated to the

25. The Bufinefs of the Juftices in Eyre, and of the Juftices of Affize, at this Day, is much leffen'd ; for in *Henry* the Third's Time there was erected the Court of Common-Pleas at *Westminfter* ; in which Court Juftices of Affize have ever been fince, and yet are, begun and handled, the great Suits of Lands, Debts, Benefices and Contracts, Fines for Affurances of Lands and Recoveries, which ufed to be either in the King's Bench, or before the Juftices in Eyre. But the Statute of *Magna Charta* is negative againft it ; viz. *Communia placita non fequantur curiam noftram, fed teneantur in aliquo loco certo* ; which *Certus Locus* must be the Common-Pleas ; yet the Judges of Circuits have now five Commiffions, by which they fit.

Juftices of Affize leffened by the Courts of Common-Pleas.

26. The *first* is a Commiffion of *Oyer and Terminer*, directed to them, and many others of the beft Account, in their Circuits ; but in this Commiffion the Judges of Affize are of the *Quorum*, fo that without them there can be no Proceeding. This Commiffion gives them Power to deal with Treafons, Murthers, and all manner of Felonies, and Mifdemeanors whatever ; and this is the largeft Commiffion they have.

Their Commiffions. Oyer and Terminer.

27. The *second* is a Commiffion of *Goal-Delivery* ; that is only to the Judges themfelves, and the Clerk of the Affize affociate ; and by this Commiffion

Goal-Delivery.

Commission they are to deal with every Prisoner in the Goal, for what Offence soever he be committed; and to proceed with him according to the Laws of the Realm, and the Quality of his Offence: and they cannot by this Commission do any thing with any Man, but such as are Prisoners in the Goal. The Course now used in Execution of this Commission of Goal-Delivery, is this. There is no Prisoner committed but by some Justice of the Peace, who, before he committed him, took his Examination, and bound his Accusers and Witnesses to appear and prosecute at the *Goal-Delivery*.

*The manner
of Proceeding
therein.*

28. This Justice certifies these Examinations and Bonds; and thereupon the Accuser is call'd solemnly into the Court; and when he appears, the Justice is will'd to prepare a Bill of Indictment against the Prisoner, and to go with it to the Grand Jury, and to give evidence upon Oath, he and the Witnesses; which he does: and the Grand Jury write thereupon either *Billa vera*, and then the Prisoner stands indicted; or else *Ignoramus*, and then he is not touched. The Grand Jury deliver these Bills to the Judges in their Courts; and so many as they find indorsed *Billa vera*, they send for the Prisoners. Then every Man's Indictment is put and read to him; and they ask him whether he be guilty or not: if he says *Guilty*, his Confession is recorded; if he says *not Guilty*, then he is asked how he will be tried; he answers, by the Country. Then the Sheriff is commanded to return the Names of the twelve Free-holders to the Court; which Free-holders are sworn to make true Delivery between the King and the Prisoner; then the Indictment is again read, and the Witnesses sworn to speak their Knowledge concerning the Fact; and the Prisoner is heard at large what Defence he can make; and then the Jury go together and consult. And after a while they come in with a Verdict of Guilty or not Guilty; which Verdict the Judges record accordingly. If any Prisoner plead not guilty upon the Indictment, and yet will not put himself to trial upon the Jury, or stand mute, he is to be pressed.

29. The Judges, when many Prisoners are in the Goal, do in the End, before they go, peruse every one. Those that were indicted by the Grand Jury, and found not guilty by the Select Jury, they judge to be quitted; and so deliver them out of the Goal. Those that are found guilty by both Juries, they judge to Death; and command the Sheriff to see Execution done. Those that refuse Trial by the Country, and stand mute upon the Indictment, they judge to be pressed to Death. Some Offences are pilfering, under twelve Pence Value, they judge to be whipped. Those that confess their Indictments, they judge to Death, Whipping, or otherwise, as their Offence requires. And those that are not indicted at all, but their Bill of Indictment returned with *Ignoramus* by the Grand Jury; and all others in the Goal, against whom no Bills are preferred, they acquit, by Proclamation, out of the Goal; so that one way or other they rid the Goal of all the Prisoners that were in it. But because some Prisoners have their Books, and are burned in the Hand, and so delivered,

SECT. II JUSTICES of the PEACE.

241

it is necessary to shew the Reason thereof. This having their Books, is called their Clergy, which in ancient Time began thus.

30. For the Scarcity of the Clergy in the Realm of *England*, to be disposed in religious Houses; or for Priests, Deacons, and Clerks of Parishes, there was a Prerogative allowed to the Clergy, that if any Man that could read as a Clerk, were to be condemned to Death, the Bishop of the Diocese might, if he would, claim him as a Clerk; and he was to see him tried, in the Face of the Court, whether he could read or not. The Book was prepared, and brought by the Bishop; and the Judge was to turn to some Place, as he should think proper; and if the Prisoner could read, then the Bishop was to have him delivered over to him, to dispose of in some Place of the Clergy, as he should judge convenient: but if either the Bishop would not demand him, or the Prisoner could not read, then he was to be put to Death.

31. And this Clergy was allowable in ancient Times and Law, for all Offences whatever, except Treason, and the robbing of Churches. But by many Statutes made since, the Clergy is taken away for Murder, Burglary, Robbery, Purse-cutting, Horse-stealing, and diverse other Felonies, particularized by the Statutes to the Judges: and lastly, by a Statute made 18 *Elizabeth*, the Judges themselves are appointed to allow Clergy to such as can read, being not such Offenders from whom the Clergy is taken away by any Statutes, and to see them burned in the Hand, and so discharge them, without delivering them to the Bishop; tho the Bishop appoints the Deputy to attend the Judges with a Book, to try whether they can read or not.

32. The *third* Commission that the Judges of the Circuits have, is a Commission directed to themselves only; and the Clerk of the Assize to take Assizes; by which they are call'd *Justices of Assize*. And the Office of those Justices is to do right upon Writs call'd Assizes, brought before them by such as are wrongfully thrust out of their Lands. Of which Number of Writs, there were many more brought before them in ancient Times than now; because Mens Seizons and Possessions are sooner recovered by sealing Leases upon the Ground, and by bringing an *Ejectione firme*, and trying their Title so, than by the long Suits of Assizes.

33. The *fourth* Commission, is a Commission to take *Nisi Prius*, directed to none but to the Judges themselves, and their Clerks of Assizes; by which they are call'd *Justices of Nisi Prius*. These *Nisi Prius* happen in this sort. When a Suit is begun for any Matter in one of the three Courts, the *King's Bench*, *Common Pleas*, or the *Exchequer*; and the Parties, in their Pleadings, vary in a Point of Fact: as for Example, if in an Action of Debt upon Obligation, the Defendant denies the Obligation to be his Debt; or in any Action of Trespas grown for taking away Goods, the Defendant denies that he took them; or in Action of the Case for slanderous Words, the Defendant denies that he spoke them, &c. then the Plaintiff is to maintain, and prove that the Obligation is the Defendant's Deed; that he either took the Goods, or spoke the Words; upon

which Denial and Affirmation the Law says, that *the Issue is join'd* betwixt them; which Issue of the Fact is to be tried by a Jury of twelve Men of the County, where it is supposed by the Plaintiff to be done. And for that purpose the Judges of the Court award a Writ of *Venire Facias*, in the King's Name, to the Sheriff of that County; commanding him to cause four and twenty discreet Freeholders of his County, at a certain Day, to try this Issue so join'd; out of which four and twenty, only twelve are chose to serve. And that double Number is returned, because some may make Default, and some be challenged upon Kindred, Alliance, or partial Dealing.

34. These four and twenty the Sheriff names, and certifies to the Court; and withal, that he has warned them to come at the Day, according to their Writ. But because at the first Summons there falls no Punishment upon the four and twenty if they come not, they very seldom or never appear upon the first Writ; and on their Default there is another Writ return'd to the Sheriff, commanding him to distrain them, by their Lands, to appear at a certain Day appointed by the Writ; which is the next Term after; *Nisi Prius Justiciarij nostri ad Assisas capiendas venerint*, &c. from which Words the Writ is call'd a *Nisi Prius*. And the Judges of the Circuit of that County, in that Vacation, before the Day of Appearance appointed for the Jury above; here by their Commission of *Nisi Prius*, have Authority to take the Appearance of the Jury in the County before them; and there to hear the Witnesses and Proofs on both sides, concerning the Issue of Fact; and to take the Verdict of the Jury; and against the Day they should have appeared above, to return the Verdict in the Court above; which Return is call'd a *Postea*. And upon this Verdict clearing the Matter in Fact, one way or other, the Judges above give Judgment for the Party for whom the Verdict is found; and for such Damages and Costs the Jury assesses.

35. By those Trials call'd *Nisi Prius*, the Juries and the Parties are much eased of the Charge they would be put to, by coming to London with their Evidences and Witnesses; and the Courts of *Westminster* are much eased of the Trouble they would have, if all the Juries for Trials should appear, and try their Causes in those Courts; for these Courts above have little Leisure now. And tho the Juries come not up, yet in Matters of great Weight, or where the Title is intricate or difficult; the Judges above, upon Information to them, retain those Causes to be tried there; and the Juries do at this Day, in such Cases, come to the Bar at *Westminster*.

Commission of
Peace.

36. The fifth Commission that the Judges in their Circuits sit by, is the Commission of the Peace in every County of their Circuit. And all the Justices of the Peace, having no lawful Impediment, are bound to be present at the Assizes, to attend the Judges, as Occasion shall require. If any one make Default, the Judges may set a Fine upon him, at their Discretion. Also the Sheriff in every Shire, thro the Circuit, is to attend in Person, or by a sufficient Deputy allow'd by the Judges, all the time they are within the

the
K
Y
ti
im
wa
qu
app
in
Cor
Men
quel
Tiel
left b
the L
under
gained
to him
whoev
perty i
granted
laid La
because
Man's J
named i
4, they
go to the

the County : and the Judges may fine him, if he fail, or for Negligence or Misbehaviour in his Office before them. And the Judges above may also fine the Sheriff, for not returning, or not sufficient returning of Writs before them.

S E C T. III.

*The PROCEDURE of the LAW in Matter of
PROPERTY.*

1. **P**roperty in Lands is acquired or transferred ; (1.) by *Entry* ; Property of Lands, how acquired. (2.) by *Descent* ; (3.) by *Escheat* ; and, (4.) most commonly by *Conveyance*.

2. *Property by Entry* is, where a Man finds a Piece of Land that no Person possesses, or has Title to ; and he that so finds it enters : this Entry gains a Property. This Law seems to be derived from this Text, *Terram dedit filiis hominum* ; which is to be understood, to those that will till and manure it ; and so make it yield Fruit : and that is, he who enters into it, where no Man had it before. But this manner of gaining Lands was in the first Days, and is not now of use in *England* ; for by the Conquest, all the Land of this Nation was in the Conqueror's Hands, and appropriated to him ; except religious and Church Lands, and the Lands in *Kent*, which by Composition were left to the former Owners, as the Conqueror found them ; so that none but Bishopricks, Churches, and the Men of *Kent*, can at this Day make any greater Title than from the Conquest, to any Lands in *England*. And the Lands possessed without any such Title, are in the Crown, and not in him that first enters ; as it is by Land left by the Sea. This Land belongs to the King, and not to him that has the Lands next adjoining, which was the ancient Sea-bank. This is to be understood of the Inheritance of Lands ; viz. that the Inheritance cannot be gained by the first Entry. Suppose a Man call'd *A*, having Land convey'd to him for the Life of *B*, dies without making any Estate of it ; there, whoever first enters into the Land after the Decease of *A*, gets the Property in the Land, for time of the Continuance of the Estate which was granted to *A*, for the Life of *B* ; which *B* yet lives ; and therefore the said Land cannot return till *B* die. And to the Heir of *A* it cannot go, because it is not any Estate of Inheritance ; but only an Estate for another Man's Life ; which is not descendable to the Heir, except he be specially named in the Grant ; viz. to him and his Heirs. As for the Executors of *A*, they cannot have it ; for it is not an Estate testamentary, that it should go to the Executors, as Goods and Chattels should ; so that in truth no Man can

Occupancy.

can entitle himself to those Lands: and therefore the Law prefers him that first enters; and he is call'd *Occupans*, and shall hold it during the Life of *B*; but must pay the Rent, perform the Conditions, and do no waste: and he may by Deed assign it to whom he please in his Life-time. But if he die before he assign it over; then it shall go again to whomsoever first enters and holds; and so all the Life of *B*, as often as it shall happen.

3. Likewise, if any Man wrongfully enters into another's Possession, and puts the right Owner of the Freehold and Inheritance from it; he thereby gets the Freehold and Inheritance by *Disseisin*; and may hold it against all Men; but him that has Right, and his Heirs, and is call'd a *Disseisor*. Or if any one die seised of Lands, and before his Heir enters, one that has no Right enters into the Lands, and holds them from the right Heir, he is call'd an *Abator*; and is lawful Owner against all Men but the right Heir.

4. And if such a Person, *Abator* or *Disseisor*, provided the *Disseisor* has quiet Possession five Years next after the *Disseisin*, continue Possession, and die seised, and the Land descend to his Heir; they have gained the Right to the Possession of the Land against him that has Right, till he recover it by fit Action real at the Common Law. And if it be not sued for at the Common Law within threescore Years after the *Disseisin*, or Abatement committed, the right Owner has lost his Right by that Negligence. And if a Man has diverse Children, and the elder, being a Bastard, enters into the Land, and enjoys it quietly during his Life, and dies so seised thereof; his Heirs shall hold the Land against all the lawful Children, and their Issues.

Property of
Lands by
Descent.

5. *Property of Lands by Descent*, is that where a Man has Lands of Inheritance and dies, not disposing of them, but leaving them to go, as the Law casts it, upon the Heir. This is call'd a *Descent of Law*; and upon whom the Descent is to light, is the Question. For which purpose, the Law of Inheritance prefers the first Child before all others; and amongst Children, the Male before the Female; and amongst Males, the first-born. If there be no Children, then the Brother; if no Brother, then Sisters; if neither Brothers nor Sisters, then Uncles; and for want of Uncles, Aunts; then Cousins in the nearest Degree of Consanguinity, with these three Rules of Diversities. (1.) That the eldest Male shall solely inherit; but if it come to Females, then they being all in an equal Degree of Nearness, shall inherit all together, and are call'd *Parceners*; and all these make but one Heir to the Ancestor. (2.) That no Brother, nor Sister of half Blood, shall inherit to his Brother or Sister, but as a Child to his Parents: for Example; if a Man have two Wives, and by either Wife a Son, the eldest Son out-living his Father, is to be preferred to the Inheritance of the Father, being Fee-simple; but if he enters and dies childless, the Brother shall not be his Heir, because he is of the half Blood to him; but the Uncle of the eldest Brother or Sister of the whole Blood: yet if the eldest Brother had died, or had not entered in the Life of the Father, either

Three Rules
of Descent.

the
cest
thes
Hei
conv
9.
Land
of Cl
but to
mage
10.
cestor,
come
Quanti

either by such Entry or Conveyance, then the youngest Brother should inherit the Land that the Father had, altho it were a Child by the second Wife, before any Daughter by the first. (3.) The *third* Rule about Descents, is, That Land purchased so by the Party himself that dies, is to be inherited; first, by the Heirs of the Father's side; then if he have none of that Part, by the Heirs of the Mother's side. But Lands descending to him from his Father or Mother, are to go to that side only from which they came, and not to the other side.

6. These *Rules of Descent*, are to be understood of *Fee-simples*, Customs of certain Places. and not of *entailed Lands*; and they are restrained by some particular Customs of particular Places: as namely, the Customs of *Kent*, that every Male of equal Degree of Childhood, Brotherhood, or Kindred, shall inherit equally, as Daughters shall, being Parceners: and in many Borough Towns in *England*, the Custom allows the youngest Son to inherit, and so the youngest Daughter. The Custom of *Kent* is call'd *Gavel-kind*. The Custom of Boroughs, *Burgh-English*.

7. There is another thing to be observed in Fee-simple Inheritance; Every Heir having Land, is bound by the binding Acts of his Ancestors. viz. that every Heir having Fee-simple Land or Inheritance, be it by Common Law or by Custom, either of *Gavel-kind* or *Burgh-English*, is chargeable, so far as the Value thereof extends, with the binding Acts of the Ancestors from whom the Inheritance descends; and these Acts are collateral Incumbrances: and the Reason of this Charge is, *Qui sentit commodum, sentire debet & incommodum, sive Onus*. As for Example; if a Man bind himself and his Heirs in an Obligation, or Covenant by Writing, for him and his Heirs, or grant an Annuity for him and his Heirs, or make a Warranty of Land, binding him and his Heirs to Warranty; in all these Cases the Law charges the Heir, after the Death of the Ancestor, with this Obligation, Covenant, Annuity, and Warranty; yet with these three Cautions: first, that the Party must, by special Name, bind himself and his Heirs, or covenant, grant, and warrant for himself and his Heirs; otherwise the Heir is not to be touched.

8. *Secondly*, that some Action must be brought against the Heir, whilst the Land or other Inheritance rests in him unaliened away: for if the Ancestor die, and the Heir, before an Action be brought against him upon these Bonds, Covenants, or Warranties, do alien away the Land, then the Heir is clean discharged of the Burden; except the Land was by Fraud convey'd away, on purpose to prevent the Suit intended against him.

9. *Thirdly*, that no Heir is farther to be charged, than the Value of the Land descended to him, from the same Ancestor that made the Instrument of Charge; and that Land also, not to be sold out-right for the Debt; but to be kept in extent, and at a yearly Value, until the Debt or Damage be run out.

10. Nevertheless, if an Heir that is sued upon such a Debt of his Ancestor, do not deal clearly with the Court when he is sued; that is, if he come not in immediately, and by way of Confession set down the true Quantity of his Inheritance descended; and so submit himself, as the Law requires;

*Heirs charged
for false Plea.*

requires; then the Heir that otherwise demeans himself, shall be charged of his own Lands, or Goods, and of his Money, for this Deed of his Ancestor. As for Example; if a Man bind himself and his Heirs in an Obligation of one hundred Pounds, and dies, leaving but ten Acres of Land to his Heir; if his Heir be sued upon the Bond, and comes in, and denies that he has any Lands by Descent; and it is found against him by the Verdict, that he has ten Acres; this Heir shall be new charged by his false Plea of his own Lands, Goods and Body, to pay the three hundred Pounds, altho the ten Acres be not worth ten Pounds.

*Property of
Lands by
Escheat.*

*The Causes of
Escheat.*

11. *Property of Lands by Escheat*, is where the Owner died seised of the Lands in Possession, without Child or other Heir, whereby the Land, for want of other Heir, is said to escheat to the Lord of whom it is held. This Want of Heir happens principally in two Cases: *first*, where the Land's Owner is a Bastard. *Secondly*, where he is attainted of Felony or Treason: For neither can a Bastard have any Heir, except it be his own Child, nor a Man attainted of Treason, tho it be his own Child.

*Attainder of
Treason enti-
tles the King.*

12. Upon Attainder of Treason, the King is to have the Land, tho he be not the Lord of whom 'tis held; because it is a royal *Escheat*. But for Felony, the King is not to have the Escheat, except the Land be held of him: and yet where the Land is not held of him, the King is to have the Land for a Year and a Day next ensuing the Judgment of the Attainder, with a Liberty to commit all manner of waste, all that Year, in Houses, Gardens, Ponds, Lands and Woods.

13. In these Escheats two things are especially to be observed; *viz.* (1.) the Tenure of the Lands, because it directs the Person to whom the Escheat belongs; *viz.* the Lord of the Manor of whom the Land is held. (2.) The manner of such Attainder which draws with it the Escheat. Concerning the Tenure of Lands, it is to be understood, that all Lands are held of the Crown, either mediately or immediately; and that the Escheat appertains to the immediate Lord, and not to the mediate. The Reason why all Land is held of the Crown immediately, or by Mesne Lands, is this. The Conqueror got, by Right of Conquest, all the Land of the Realm into his own Hands, in Demesne; taking away from every Man all Estate, Tenure, Property, and Liberty of the same; except religious and Church-Lands, and the Land in *Kent*: and still as he gave any of it out of his own Hand, he reserved some Retribution of Rents, or Services, or both, to him and his Heirs; which Reservation is called the Tenure of Land. In which Reservation he had four Institutions, exceeding politick and suitable to the State of a Conqueror.

*Knight's Ser-
vice instituted.*

14. The *first* was, that seeing his People to be part *Normans* and part *Saxons*; (the *Normans* he brought with him, the *Saxons* he found here;) he bent himself to conjoin them by Marriages in Amity; and for that purpose ordains, that if those of his Nobles, Knights, and Gentlemen, to whom he gave great Rewards of Lands, should die, leaving their Heir within Age, a Male within twenty-one, and a Female within fourteen Years, and unmarried; then the King should have the bestowing of such Heirs

Heirs in Marriage in such a Family, and to such Persons as he should think fit; which Interest of Marriage went still implied, and is at this Day in every Tenure call'd Knight's-Service.

15. The *second* was, to the End that his People should be still continued in warlike Exercises, and able for his Defence. When, therefore, he gave any good Portion of Lands, that he might make the Party of Ability or Strength, he withal reserved this Service, that the Party and his Heirs having such Lands, should keep a Horse of Service continually, and serve upon him, himself, when the King went to War: or else having Impediment, to excuse his own Person, should find another to serve in his Place: which Service of Horse and Man, is a Part of that Tenure call'd *Knight's-Service* at this Day.

16. But if the Tenant himself be an Infant, the King is to hold this Land himself till he come to full Age, finding him Meat, Drink, Apparel, and other Necessaries; and finding a Horse and Man with the Overplus, to serve in the Wars; as the Tenant himself should do, if he were at full Age.

17. But if this Inheritance should descend upon a Woman, that cannot serve by her Sex, then the King is not to have the Lands; she being fourteen Years of Age; because she is then able to have a Husband that may do the Service in Person.

18. The *third Institution* was, that upon every Gift of Land, the King reserv'd a Vow and Oath, to bind the Party to his Faith and Loyalty; that Vow was called Homage, and the Oath Fealty. Homage is to be done kneeling; holding his Hands between the Knees of the Lord; saying in *French*, *I become your Man of Life and Limb, and of earthly Honour*. Fealty is to take an Oath upon a Book, that he will be a faithful Tenant to the King, and do his Service, and pay his Rents according to his Tenure.

19. The *fourth Institution* was, that for Recognition of the King's Bounty, by every Heir succeeding his Ancestor in those Knight's-Service Lands, the King should have *Primer Seisin* of the Lands, which is one Year's Profit of the Lands; and till this be paid, the King is to have Possession of the Land, and then to restore it to the Heir; which continues at this Day, and is the very Cause of suing Livery, and that as well where the Heir has been in Ward, as otherwise.

20. These are the Rights of the Tenure call'd Knight's-Service in *Capite*; which is as much as to say, a Tenure *de Persona Regis*; and *Caput* being the chiefest Part of the Person, it is call'd a Tenure *in Capite*, or in chief. 'Tis also to be noted, that as this Tenure *in Capite* by Knight's-Service, generally was a great Safety to the Crown; so also the Conqueror instituted other Tenures *in Capite*, necessary to his Estate; viz. he gave diverse Lands to be held of him, by some special Service about his Person, or by bearing some special Office in his House, or in the Field, which have Knight's-Service, and more in them; and these he call'd *Tenures by grand Serjeantry*. He also provided, upon the first Gift of Lands,

to

to have Revenues by continual Service of ploughing his Land, repairing his Houses, Parks, Pales, Castles, and the like: And sometimes to a yearly Provision of Gloves, Spurs, Hawks, Horses, Hounds, and the like; which kind of Reservations are call'd also Tenures in chief, or *in Capite* of the King; but they are not by Knight's-Service; because they required no personal Service; but such things as the Tenants may hire another to do, or provide by Money.

The Institution of Soccage in Capite.

21. And this Tenure is call'd a Tenure by Soccage *in Capite*; the Word *Socagium* signifying the Plough; tho in later times, the Service of ploughing the Land is turned into Money Rent; and so of Harvest Works; because the Kings do not keep their Demesne in their own Hands, as they used to do; yet what Lands were *de antiquo Dominio Corone*, well appears in the Records of the Exchequer call'd the Book of *Doomsday*. And the Tenants, by ancient Demesne, have many Immunities and Privileges at this Day, that in ancient Times were granted to those Tenants by the Crown; the Particulars whereof are too long to set down.

22. These *Tenures in Capite*, as well that by Soccage, as the others by Knight's-Service, have this Property; that the Tenants cannot alien their Lands without Licence of the King: if they do, the King is to have a Fine for the Contempt, and may seize the Land, and retain it till the Fine be paid. The Reason is, because the King would have a Liberty in the Choice of his Tenant; so that no Man shall presume to enter into those Lands, and hold them, for which the King was to have those special Services done him, without the King's Leave. This Licence and Fine, as it is now digested, is easy, and of Course.

Office of Alienation.

23. There is an Office call'd the Office of *Alienation*, where any Man may have Licence at a reasonable Rate; that is, at the third part of one Year's Value of the Land moderately rated. A Tenant *in Capite* by Knight's-Service, or grand Sergeantry, was restrained by ancient Statute, that he should not give, nor alien away, more of his Lands, than that with the rest he might be able to do the Service due to the King; but this is now disused.

Aid, what.

24. And to this Tenure by Knight's-Service in Chief, was incident that the King should have a certain Sum of Money, call'd *Aid*, due to be ratably levied among all those Tenants proportionably to his Lands, to make his eldest Son a Knight, or to marry his eldest Daughter.

Tenants by Soccage and in Capite.

25. And it is to be observed, that all those who hold Lands by the Tenure of Soccage *in Capite*, altho not by Knight's-Service, cannot alien without Licence; and they are to sue Livery, and pay *Primier Seisin*, but not to be in Ward for Body or Land.

Manors, how first created.

26. In Imitation of the King's Policy in these Institutions of Tenures, the great Men and Gentlemen of this Realm did the like, as near as they could: thus when the King had given to any of them two thousand Acres of Land, the Party purposing in this Place to make his Dwelling; or, as the old Word is, his Mansion-House, or his Manor-House, devised how he might make his Land a complete Habitation, to supply him with all

all Necessaries; and for that purpose he would give of the extreme Parts of those two thousand Acres, a hundred, or two hundred Acres, more or less, as he should think fit, to one of his most trusty Servants, with some Reservation of Rent, to find a Horse for the Wars, and go with him when he went with the King to the Wars; adding a Vow of Homage, and the Oath of Fealty, Wardship, Marriage, and Relief. This *Relief* is to pay five Pounds for every Knight's Fee, or after that Rate for more or less, at the Entrance of every Heir; which Tenant so created and placed, was, and is to this Day call'd a *Tenant by Knight's-Service*, and not by his own Person, but of his Manors: of these he might make as many as he pleased. Then this Lord would provide that the Land he was to keep for his own Use, should be ploughed, and his Harvest brought home, his House repaired, his Park pale'd, and the like: and for that end he would give some lesser Parcels to sundry others, of twenty, thirty, forty, or fifty Acres; reserving the Service of ploughing a certain Quantity, or so many days of his Land, and certain Harvest Works, or Days in the Harvest, to labour; or to repair the House, Park-Pale, or otherwise; or to give him for his Provision, Capons, Hens, Pepper, Cumin, Roses, Gilliflowers, Spurs, Gloves, or the like; or to pay him a certain Rent, and to be sworn his faithful Tenant; which Tenure was call'd a *Soccage Tenure*; *Soccage-Tenure* and is so to this Day: tho most of the Ploughing and Harvest Services are turned into Money Rents.

25. The *Tenants in Soccage*, at the Death of every Tenant, were to pay *Relief of Tenants in Soccage*, which was not as Knight's-Service is, five Pounds a Knight's Fee; but it was, and is still so, one Year's Rent of the Land; and no Wardship, or other Profit to the Lord. The Remainder of the two thousand Acres he kept to himself; which he used to manure by his Bondmen, and appointed them, at the Courts of his Manor, how they should hold it, making an Entry of it into the Roll of the Remembrances of the Acts of his Court; yet still in the Lord's Power to take it away; and therefore they were call'd Tenants at Will, by *Copy of Court-Roll*; being in truth Bond-men at the beginning: but having obtained Freedom of their Persons, and gain'd a Custom by use of occupying their Lands, they now are call'd Copy-holders, and are so privileged, that the Lord cannot put them out; and all thro Custom. Some *Copy-holders* are for Lives; one, two, or three successively; and some Inheritances from Heir to Heir by Custom; and Custom rules these Estates wholly, both for Widows, Estates, Fines, Harriots, Forfeitures, and all other things.

26. Manors being thus made at the first, it was reasonable the Lord of the Manor should hold a Court; which is no more than to assemble his Tenants together at a time by him appointed: in which Court he was to be informed, by the Oath of his Tenants, of all such Duties, Rents, Reliefs, Wardships, Copy-holds, or the like, that had happened to him; which Information is call'd a *Presentment*: and then his Bailiff is to seize and distrain for those Duties, if they were denied or with-held. This Court is call'd a *Court-Baron*: and herein a Man may sue for any Debt or Trespas.

pass under forty Pound Value; and the Freeholders are to judge of the Cause, upon Proof produced on both sides. And therefore the Freeholders of these Manors, as incident to their Tenures, do hold by *Suit of Court*; which is to come to the Court, and there to judge between Party and Party in those petty Actions; and also to inform the Lord of Duties, Rents, and Services unpaid to him from his Tenants. By this Course it is discerned who are the Lords of Lands; such as if the Tenants die without Heir, or be attainted of Felony or Treason, shall have the Land by Escheat.

What Attainders give the Escheat to the Lord. 27. Now for what Attainders shall give the Escheat to the Lord; it must either be by Judgment of Death, given in some Court of Record against the Felon found guilty by Verdict, or Confession of the Felony; or else by Outlawry of him.

Outlawry. 28. The Outlawry proceeds thus. A Man is indicted for Felony, being not in hold; so that he cannot be brought in Person to appear and be tried; insomuch that Process of *Capias* is therefore awarded to the Sheriff, who not finding him, returns, *non est inventus in balliva mea*; and thereupon another *Capias* is awarded to the Sheriff, who likewise, not finding him, makes the same Return; then a Writ, call'd an *Exigent*, is directed to the Sheriff, commanding him to proclaim him, in his County-Court, five several Court-Days, to yield his Body: which if the Sheriff do, and the Party yield not his Body, he is said, by the Default, to be out-law'd; the Coroners there adjudging him out-law'd, and the Sheriff making the Return of the Proclamations, and of the Judgment of the Coroners upon the Back-side of the Writ. This is an Attainder of Felony; whereupon the Offender forfeits his Lands, by an Escheat to the Lord of whom they are held.

Prayer of Clergy. 29. But a Man found guilty of Felony by Verdict or Confession, and praying his Clergy; and thereupon reading as a Clerk, and so burnt in the Hand and discharged; is not attainted; because by his Clergy he prevents the Judgment of Death, and is call'd a Clerk-Convict; who loses not his Lands, but all his Goods, Chattels, Leases, and Debts.

Standing mute. 30. So a Man indicted, that will not answer, nor put himself upon Trial, altho he be by this to have Judgment of pressing to Death, yet he forfeits no Lands; but Goods, Chattels, Leases, and Debts; except his Offence be Treason; and then he forfeits his Lands to the Crown.

Felo de se, and flying. 31. So a Man that kills himself shall not lose his Lands, but his Goods, Chattels, Leases, and Debts: and the like of those that kill others in their own Defence, or by Misfortune. A Man that being pursued for Felony, and flies for it, loses his Goods for his flying; altho he return and is tried, and not found guilty of the Fact.

Not surrendering. 32. So a Man indicted of Felony, if he yield not his Body to the Sheriff till after the Exigent of Proclamation is awarded against him, forfeits all his Goods for his Delay; altho he be not found guilty of the Felony: but none are attainted to lose Lands, besides such as have Judg-

ment of Death by Trial upon Verdict, or their own Confession, or are by Judgment of the Coroner's out-law'd, as before.

33. Besides the Escheats of Lands to the Lords of whom they are held for want of Heirs, and by Attainder of Felony; which only hold Place in Fee-simple Lands; there is also Forfeiture of Lands to the Crown, but not to the Lord. *Forfeiture of Lands to the Crown.*

34. And if a Man having an Estate for Life of himself, or of another, commit Treason or Felony, the whole Estate is forfeited to the Crown; but no Escheat to the Lord. *For Treason.*

35. But a Copy-hold, for Fee-simple, or for Life, is forfeited to the Lord, and not to the Crown; and if it be entail'd, the Lord is to have it during the Life of the Offender only; and then his Heir is to have it.

36. The Custom of *Kent* is, that Gavelkind-Land is not forfeitable, nor escheatable, for Felony: for they have an old Saying; *The Father to the Bough, and the Son to the Plough.*

37. If the Husband was attainted, the Wife was to lose her Thirds, in Cases of Felony or Treason; yet she is no Offender; but at this Day 'tis held by Statute-Law, that she loses them not for the Husband's Felony. The Relation of these Forfeits runs thus. That Men attainted of Felony or Treason, by Verdict or Confession, forfeit all the Lands they had at the time of the Offence committed; and the King or the Lord, whoever of them has the Escheat or Forfeiture, shall come in, and avoid all Leases, Statutes, or Conveyances done by the Offender, at any time since the Offence committed. And so the Law is clear also, if a Man be attainted for Treason by Out-lawry. But upon Attainder of Felony by Out-lawry, it has been much doubted by the Law Books, whether the Lord's Title by Escheat shall relate back to the time of the Offence done, or only to the Date or Test of the Writ of Exigent for Proclamation; whereupon he is out-law'd: tho at this Day it is ruled, that it shall reach back to the time of his Fact; but for Goods, Chattels, and Debts, the King's Title shall look no further back than to those Goods which the Party attain'd by Verdict or Confession, had at the time of the Verdict and Confession, given or made; and in Out-lawries, at the time of the *Exigent*, as well in Treasons as Felonies: wherein it is to be observed, that upon the Parties being first apprehended, the Kings Officers are to seize all the Goods and Chattels, and preserve them together; dispending only so much out of them, as is fit for the Sustentation of the Person in Prison; without any Waste or disposing of them till Conviction; and then the Property of them is in the Crown, and not before. *Felony.*

38. Note also, that Persons attainted for Felony or Treason, have no Capacity to take, obtain, or purchase, save only to the Use of the King, till the Party be pardoned. Yet the Party gives not back his Lands or Goods, without a special Patent of Restitution; which cannot restore the Blood without an Act of Parliament. So if a Man have a Son, and then is attainted of Felony or Treason, and pardoned; and purchases Lands, and then has Issue another Son, and dies; the Son he had before he was

pardoned, altho he be his eldest Son, and the Patent have the Words of Restitution to his Lands, shall not inherit, but his second Son shall; because the Blood is corrupted by the Attainder, and cannot be restored by Patent alone, but by Act of Parliament. And if a Man have two Sons, and the eldest is attainted in the Life of his Father, and dies without Issue, the Father living, the second shall inherit the Father's Lands; but if the eldest Son have any Issue, tho he die in the Life of his Father, then neither the second Son, nor the Issue of the eldest, shall inherit the Father's Lands; but the Father shall there be accounted to die without Heir, and the Land shall escheat, whether the eldest Son have Issue or not, afterwards or before, tho he be pardoned after the Death of his Father.

S E C T. IV.

Of PROPERTY of LANDS by CONVEYANCE.

Estates, how i.
created by
Lease Parole.

ESTATES are created by Word, by Writing, or by Record. *Estates of Years*, which are commonly call'd *Leases for Years*, are made thus. Where the Owner of the Land agrees with the other by Word of Mouth, that the other shall have, hold, and enjoy the Land, to take the Profits thereof for a certain Term of Years, Months, Weeks, or Days, agreed between them; this is call'd a *Lease Parole*. Such a Lease may be made by Writing, Pole, or indented of Device, Grant, and to Farm let, and also by Fine of Record; but whether any Rent be reserved or no, is not material.

Leases go to
Executors,
not Heirs.

How forfeit-
ed.

2. To these Leases may be annexed such Exceptions, Conditions, and Covenants, as the Parties can agree on. They are call'd *Chattels real*; and are not inheritable by the Heirs, but go to the Executors and Administrators, and are saleable for Debts in the Life of the Owner, or in the Executors, or Administrators Hands, by Writs of Execution upon Statutes, Recognizances, Judgments of Debts or Damages. They are also forfeitable to the Crown by Out-lawry, by Attainder for Treason, Felony, or *Præmunire*, Self-Murder, flying for Felony, altho not guilty of the Fact; standing out, or refusing to be tried by the County, by Conviction of Felony, by Verdict without Judgment, Petty-Larceny, or going beyond the Sea without Licence.

Chattels real.

3. They are forfeitable to the Crown, in like manner as Leases for Years, or Interest, got in other Mens Lands, by extending for Debt upon Judgment in any Court of Record, Statute-Merchant, Statute-Staple, Recognizances; which being upon Statutes, are call'd Tenants by Statute-Merchant, or Staple; the other Tenants by *elegit*, and by Wardship of Body and Lands: for all these are call'd *Chattels real*, and go to the Executors and

and Administrators, and not to the Heirs; and are saleable and forfeitable, as Leases for Years are.

4. Leases for Lives are also call'd *Freeholds*; and may likewise be made by Word or Writing. There must be Livery and Seisin given at the making of the Lease by him we call the Lessor; who comes to the Door, Backside, or Garden, if it be a House; if not, then to some part of the Land, and there expresses, that he does grant to the Taker, call'd the Lessee, for Term of his Life: and in Seisin thereof, he delivers to him a Turf, Twig, or Ring of the Door: and if the Lease be by Writing, then commonly there is a Note written on the Backside of the Lease, with the Names of those Witnesses, who were present at the time of the Livery and Seisin made. This Estate is not saleable by the Sheriff for Debt; but the Land is to be extended for a yearly Value, to satisfy the Debt. 'Tis not forfeitable by Out-lawry, except in Cases of Felony; nor by any of the Means before-mention'd, of Leases for Years; saving in an Attainder for Felony, Treason, or *Præmunire*; and then only to the Crown, and not to the Lord, by Escheat.

*Leases for
Lives; or Free-
holds.*

*How forfeit-
ed.*

5. And tho a Nobleman, or other, have liberty by Charter, to have all Felons Goods; yet a Tenant holding for Term of Life, being attainted of Felony, forfeits to the King, and not to this Nobleman.

6. If a Man have an Estate in Lands for another's Life, and dies; this Land cannot go to his Heir, nor to his Executors, but to the Party that first enters; and he is call'd an Occupant, as before-mention'd.

7. A Lease for Years, or Life, may be made also by Fine of Record, or Bargain and Sale, or Covenant, to stand seized upon good Considerations of Marriage, or Blood: the Reasons whereof are hereafter expressed.

Entails.

8. Entails of Lands are created by a Gift, with Livery and Seisin to a Man, and to the Heirs of his Body; this Word, *Body*, making the Entail, may be demonstrated and restrained to the Males or Females, Heirs of their two Bodies, or of the Body of either of them, or of the Body of the Grandfather or Father.

9. Entails of Lands began by a Statute made in the time of *Edward* the First; by which also they are so much strengthened, as that the Tenant in Tail could not put away the Land from the Heir, by any Act of Conveyance or Attainder; nor let it, nor incumber it, longer than his own Life.

Their Origin.

10. But the Inconvenience thereof was great; for by that means, the Land being so sure tied upon the Heir that his Father could not put it from him, it made the Son disobedient, negligent, and wasteful; often marrying without the Father's Consent; and to grow insolent in Vice; knowing that there could be no Check of disinheriting him. It also made the Owners of the Land less fearful to commit Murders, Felonies, Treasons, and Man-slaughters; as they knew none of these Acts could hurt the Heir of his Inheritance. It hinder'd Men who had entail'd Lands, that they could not make the best of their Lands by Fine and Improvement; because

*Inconveni-
ous*

because

because none, upon so uncertain an Estate, as for the Term of his own Life, would give him a Fine of any Value; or lay any great Stock upon the Land, that might yield Rent improved. Lastly, these Entails defrauded the Crown, and many Subjects, of their Debts; because the Land was not liable any longer than his own Life-time; whence the King could not safely commit any Office of Account to such whose Lands were entail'd, nor other Men trust them with Loan of Money.

remedied
by Statutes.

11. These Inconveniencies were all remedied by Acts of Parliament, later than the Acts of Entails, made 4 *Hen. VII.* 32 *Hen. VIII.* A Tenant in Tail may disinheret his Son by a Fine, with Proclamation; and may by that means also make it subject to his Debts and Sales.

12. By a Statute made 26 *Hen. VIII.* a Tenant in Tail forfeits his Lands for Treason: and by another Act of Parliament, 32 *Hen. VIII.* he may make Leases good against his Heir for one and twenty Years, or three Lives; so that if it be not of his chief Houses, Lands, or Demesne, or any Lease in Reversion, nor less Rent reserved than the Tenants have paid most part of one and twenty Years before; nor have any manner of Discharge for doing Wastes and Spoils: by a Statute made 33 *Hen. VIII.* Tenants of entail'd Lands are liable to the King's Debts by Extent; and by a Statute made 13 and 39 *Eliz.* they are saleable for the Arrearages, upon his Account, for his Office; so that now it rests, that entail'd Lands have two Privileges only; *viz. First*, not to be forfeited for Felonies: and *secondly*, not to be extended for Debts after the Parties Death; except the Entails be cut off by Fine and Recovery.

Perpetuity.

13. But note, that since these notable Statutes and Remedies provided by Statutes, dock Entails, there is started up a Device call'd *Perpetuity*; which is an Entail with an Addition of a Proviso conditional, tied to his Estate, not to put away the Land from his next Heir; and if he do, to forfeit his own Estate. Which *Perpetuities*, if they should stand, would bring in all the former Inconveniencies subject to Entails, that were cut off by the former Statutes, and far greater; for by the *Perpetuity*, if he that is in Possession start away never so little, as in making a Lease, or selling a little Quillet, forgetting after two or three Descents, as they often do, how they are tied; the next Heir must enter, who peradventure is his Son, his Brother, Uncle, or Kinsman. And this raises unkind Suits, setting all that Kindred at Jars; some taking one part, some another; and the principal Parties wasting their Time and Money in Suits of Law. So that in the end they are both constrained by Necessity, to join in a Sale of the Land, or a great part of it, to pay their Debts, occasioned thro their Suits: and if the Chief of the Family for any good Purpose of well seating himself, by selling that which lies far off, is to buy that which is near, or for the Advancement of his Daughters, or younger Sons, should have reasonable Cause to sell; this *Perpetuity*, if it should hold good, restrains him. And more than that, where many are Owners of Inheritance of Land not entail'd, they may, during the Minority of the eldest Son, appoint the Profits to go to the Advancement of the younger Sons and Daughters, and

and pay Debts; but by Entails and Perpetuities, the Owners of these Lands cannot do it; but they must suffer the whole to descend to the eldest Son, and so to come to the Crown by Wardship all the time of his Infancy.

14. Wherefore, seeing the dangerous Times and untowardly Heirs, they might prevent those Mischiefs of undoing their Houses, by conveying the Land from such Heirs, if they were not tied to the Stake by these Perpetuities, and restrained from forfeiting to the Crown, and disposing it to their own, or to their Childrens Good; it is worthy of Consideration, whether it be better for the Subject and Sovereign to have the Lands secured to Mens Names and Bloods by Perpetuities, with all the Inconveniencies above-mention'd, or to hazard the Undoing of Families by unthrifty Posterity.

15. The last and greatest Estate of Lands is *Fee-simple*; and beyond this *Fee-simple*, there is none of the former for Lives, Years, or Entails; but beyond them is *Fee-simple*. For it is the greatest, last, and utmost Degree of Estates in Land; therefore he that makes a Lease for Life, or a Gift in Tail, may appoint a Remainder when he makes another for Life or in Tail, or a third in *Fee-simple*; but after a *Fee-simple* he can limit no other Estate. And if a Man dispose not of the *Fee-simple* by way of Remainder, when he makes the Gift in Tail, or for Lives; then the *Fee-simple* rests in himself as a Reversion.

16. The Difference between a Reversion and a Remainder is this. The Remainder is always a succeeding Estate, appointed upon the Gifts of a precedent Estate, at the time when the Precedent is appointed. But the Reversion is an Estate, left in the Giver, after a particular Estate made by him for Years, Life, or Entail: where the Remainder is made with the particular Estates, then it must be done by Deeds in Writing, with Livery and Seisin, and cannot be by Words; and if the Giver will dispose of the Reversion after it remains in himself, he is to do it by Writing, and not by Word; and the Tenant is to have Notice of it, and to attune it; which is to give his Assent by Word, or paying Rent, or the like: and except the Tenant will thus attune, the Party to whom the Reversion is granted, cannot have the Reversion; neither can he compel him by any Law to attune, except the Grant of the Reversion be by Fine; and then he may, by a Writ provided for that purpose: and if he do not purchase that Writ, yet by the Fine the Reversion shall pass; and the Tenant shall pay no Rent, except he will himself; nor be punished for any Waste in Houses, Woods, &c. unless it be granted by Bargain and Sale, by Indenture enroll'd. These *Fee-simple* Estates lie open to all Perils of Forfeitures, Extents, Incumbrances, and Sales.

17. Lands are convey'd six Ways; (1.) by *Feoffment*, which is where, Lands conveyed by Deed, Lands are given to one and his Heirs, and Livery and Seisin made according to the Form and Effect of the Deed: if a lesser Estate than *Fee-simple* be given, and the Livery of Seisin made, it is not call'd a *Feoffment*, except the *Fee-simple* to be conveyed; but it is otherwise call'd a Lease for Life, or Gift Entail, as above-mention'd.

18. (2.)

18. (2.) A *Fine* is a real Agreement, beginning thus; *Hæc est finalis concordia*, &c. This is done before the King's Judges in the Court of Common Pleas, concerning Lands that a Man should have from another to him and his Heirs, or to him for his Life, or to him and the Heirs male of his Body, or for Years certain; whereupon Rent may be reserved, but no Condition or Covenants. This *Fine* is a Record of great Credit: and upon this *Fine* are four Proclamations made openly in the Common Pleas; that is, in every Term one, for four Terms together; and if any Person, having Right to the same, make not claim within five Years after the Proclamation ended, he loses his Right for ever; except it be an Infant, a Woman Covert, a Mad-man, or one beyond the Seas; and then his Right is saved; so that the Claim be made within five Years after the Death of the Husband, Recovery of Senses, or Return from beyond Sea. This *Fine* is call'd a *Feoffment of Record*; because it includes all that the *Feoffment* does; and works farther of its own Nature, and bars Entails peremptorily, whether the Heir claim within five Years, or not; if he claim by him that levied the *Fine*.

Recovery.

19. (3.) *Recoveries* are when for Assurances of Lands, the Parties agree that one shall begin an *Action real* against the other, as if he had good Right to the Land; and the other shall not enter into Defence against it, but alledge that he bought the Land of *J. H.* who had warranted it unto him, and pray that *J. H.* may be call'd in to defend the Title; which *J. H.* is one of the Criers of the Common-Pleas; and is call'd the Common-Voucher. This *J. H.* shall appear, and make as if he would defend it; but shall pray a Day to be assign'd him in his Matter of Defence; which being granted, at the Day he makes Default, and thereupon the Court is to give Judgment against him; which cannot be for him to lose his Land, because he has it not; but the Party that he sold it to has that, who vouched him to warrant it.

20. Therefore the *Demandant*, who has no Defence made against it, must have Judgment to have the Land, against him that he sued, who is call'd the Tenant; and the Tenant is to have Judgment against *J. H.* to recover in Value so much Land of his, where in Truth he has none, nor never will. And by this Device, grounded upon the strict Principles of Law, the first Tenant loses the Land, and has nothing for it; but it is by his own Agreement for Assurance to him that bought it.

21. This Recovery bars Entails, and all Remainders and Reversions that should take place after the Entails; saving where the King is the Giver of the Entail, and keeps the Reversion to himself; then neither the Heir, nor the Remainder, nor Reversion, is barred by the Recovery.

22. The Reason why the Heirs, Remainders and Reversions, are thus barred, is because, in strict Law, the Recompence adjudged against the Crier that was Vouchee, is to go in Succession of Estate, as the Land should have done; and then it was not Reason to allow the Heir Liberty to keep the Land itself, and also to have Recompence; and therefore he loses the Land, and is to trust to the Recompence.

23. This

23. This Device was first invented, when Entails fell out to be so inconvenient as is before declared; so that Men made no Conscience to cut them off, if they could find Law for it. And now, by use, those Recoveries are become common Assurances against Entails, Remainders and Reversions, and are the greatest Security Purchasers have for their Money; for a Fine will bar the Heir in Tail; and not the Remainder, nor Reversion, but a common Recovery will burthen all.

24. Upon *Feoffments* and *Recoveries*, the Estate settles as the Use and Intent of the Parties is declared by Word or Writing, before the Act was done: as for Example; if they make a Writing that one of them shall levy a Fine, make a Feoffment, or suffer a common Recovery to the other; but the Use and Intent is, that one should have it for his Life, and after his Decease, a Stranger to have it in Tail, and then a third in Fee-simple: In this Case the Land settles in an Estate, according to the Use and Intent declared. And that by reason of the Statute made 27 Hen. VIII. conveying the Land in Possession to him that has Interest in the Use, or Intent of the Fine, Feoffment, or Recovery; according to the Use and Intent of the Parties. Upon this Statute is likewise grounded the fourth and fifth of the six Conveyances; viz. Bargains, Sales, and Covenants, to stand seized to Uses; for this Statute, wherever it finds an Use, conjoins the Possession to it, and turns it into like Quality of Estate, Condition, Rent, and the like, as the Use has.

25. (4.) The Use is but the Equity and Honesty to hold the Land *in Use, what. conscientia boni viri*. As for Example; I and you agree that I shall give you Money for your Land, and you shall make me Assurance of it. I pay you the Money; but you made me no Assurance of it. Here, altho the Estate of the Land be still in you, yet the Equity and Honesty to have it is with me; and this Equity is call'd the *Use*: upon which I had no Remedy but in Chancery, till this Statute was made of 27 Hen. VIII. and now this Statute conjoins and contains the Land to him that has the Use. I, for my Money paid to you, have the Land itself, without any other Conveyance from you; and it is call'd a Bargain and Sale.

26. But the Parliament which made that Statute, foresaw it would be mischievous that Mens Lands should so suddenly, upon the Payment of a little Money, be convey'd from them, perhaps in an Ale-house, or a Tavern, upon strainable Advantages; and therefore gravely provided another Act in the same Parliament, that the Land, upon Payment of this Money, should not pass away, except there were a Writing indented, made between the said two Parties; and the said Writing also, within six Months, enrolled in some of the Courts at *Westminster*, or in the Sessions Rolls in the Shire where the Land lies; unless it be in Cities or Corporate Towns, where they used to enroll Deeds; and there the Statute extends not.

27. (5.) The *fifth Conveyance* of a Fine, is a Conveyance to stand seiz'd to Uses: it is in this sort. A Man has a Wife and Children, Brethren and Kinsfolks, may, by Writing under his Hand and Seal, agree, that for

Conveyance to stand seiz'd to Uses.

their, or any of their Preferment, he will stand seized of his Lands to their Uses, either for Life in Tail or Fee; so as he shall see Cause: upon which Agreement in Writing, there arises an Equity or Honesty, that the Land should go according to those Agreements; Nature and Reason allowing these Provisions; which Equity and Honesty is the *Use*. And the *Use* being created in this sort; the Statute of 27 *Hen. VIII.* before-mentioned, conveys the Estate of the Land as the *Use* is appointed.

28. And so this *Covenant to stand seized to Uses*, is at this day, since the said Statute, a Conveyance of Land; and with this Difference from a Bargain and Sale, that this needs no Enrollment, as a Bargain and Sale does; nor needs it to be in Writing indented, as *Bargain and Sale* must: and if the Party, to whose *Use* he agrees to stand seized of the Land, be not Wife or Child, Cousin, or one that he means to marry, then will no *Use* rise, and so no Conveyance; for altho the Law allow such weighty Considerations of Marriage and Blood to raise *Uses*; yet it admits not such trifling Considerations, as of Acquaintance, Schooling, Services, or the like.

29. But where a Man makes an Estate of his Land to others, by Fine, Feoffment, or Recovery, he may then appoint the *Use* to whom he pleases, without respect of Marriage, Kindred, or other things; for in that Case his own Will and Declaration guides the Equity of the Estate. 'Tis not so when he makes no Estate, but agrees to stand seized; nor when he has taken any thing, as in the Cases of Bargain, and Sale, and Covenant, to stand to *Uses*.

Conveyance
by Will in
Writing.

30. (6.) The last of the *six Conveyances is a Will in Writing*; which Course of Conveyance was first ordain'd by a Statute made 32 *Hen. VIII.* before which Statute no Man might give Land by Will, except it were in a Borough Town, where there was an especial Custom, that Men might give their Lands by Will; as in *London*, and many other Places.

31. The not giving of Land by Will, was thought to be a Defect at Common Law, that Men in Wars, or suddenly falling sick, had not Power to dispose of their Lands, except they could make a Feoffment, or levy a Fine, or suffer a Recovery; which want of time would not permit: and for Men to do it by these means, when they could not undo it again, was hard: besides, even to the last Hour of Death, Mens Minds might alter upon further Proofs of their Children or Kindred, or Increase of Children or Debt, or Defect of Servants or Friends to be altered. Whence it was reasonable that the Law should permit Men to reserve to the last Instant, the disposing of their Lands; and to give them Means to dispose thereof: but that not suiting, Men used this Device.

32. They conveyed their full Estates of Lands, in their good Health, to Friends in Trust, properly call'd Feoffees in Trust; and then they would by their Wills declare how their Friends should dispose of their Lands: and if those Friends would not perform it, the Court of Chancery was to compel them by reason of Trust; and this Trust was call'd the *Use* of the Land; so that the Feoffees had the Land, and the Party himself

himself had the Use; which Use was in Equity, to take the Profits for himself; and that the Feoffees should make such an Estate as he should appoint them; and if he appointed none, then the Use should go to the Heir, as the Estate itself of the Land should have done; for the Use was to the Estate like a Shadow following the Body.

33. By this Course of putting Lands into Use, there arose many Inconveniencies; viz. the giving Men Power and Liberty to dispose of their own, was turned to deceive many of their just and reasonable Rights; so that a Man who had Cause to sue for his Land, knew not against whom to bring his Action, nor who was the Owner of it. The Wife was defrauded of her Thirds; the Husband of being Tenant by Courtesy; the Lord of his Wardship, Relief, Heriot and Escheat; the Creditor of his Extent for Debt; the poor Tenant of his Lease: for these Rights and Duties were given, by Law, from him that was the Owner of the Land, and no other; which was now the Feoffee of Trust; and so the old Owner, which we call the Feoffer, should take the Profits, and leave the Power to dispose of the Land, at his Discretion, to the Feoffee; and yet he was not such a Tenant as to be seized of the Land, so as his Wife could have Dower; or the Lands be extended for his Debts; or that he could forfeit it for Felony or Treason; or that his Heir could be Ward for it, or any Duty of Tenure fall to the Lord by his Death; or that he could make any Leases of it. Which Frauds, by Degrees of time, as they increased, were remedied by diverse Statutes. These Frauds nevertheless multiplying daily, in the End, 27 Hen. VIII. the Parliament purposing to take away all those Uses, and reducing the Law to the ancient Form of conveying of Lands by publick Livery of Seisin, Fine, and Recovery, ordained, that where the Lands were put in Trust or Use, there the Possession and Estate should be presently carried out of the Friends in Trust, and settled and invested on him that had the Uses, for such Term and Time as he had the Use.

34. By this Statute of 27 Hen. VIII. the Power of disposing Land by Will, is clearly taken away among those Frauds; whereupon 32 Hen. VIII. another Statute was made to empower Men to give Lands by Will in this sort. *First*, it must be by Will in Writing. *Secondly*, he must be seized of an Estate in Fee-simple; for Tenant for another Man's Life, or Term in Tail, cannot give Land by Will; by that Statute 32 Hen. VIII. he must be solely seized; and not jointly with another; and then being thus seized for all the Land he holds in Soccage Tenure, he may give it by Will, except he hold any Piece of Land *in Capite* by Knight's-Service of the King; and then laying all together, he can give but two Parts by Will; for the third Part of the whole, as well in Soccage as *in Capite*, must descend to the Heir, to answer Wardship, Livery, and primer Seisin to the Crown. And so if he hold Lands by Knight-Service of a Subject, he can devise of the Land but two Parts; and the third, the Lord by Wardship, and the Heir by Descent, is to hold.

35. And if a Man that has three Acres of Land held *in Capite* by Knight's-Service, do make a Jointure to his Wife of one, and convey another to any of his Children, or to Friends, to take the Profits, and to

pay his Debts or Legacies, or Daughter's Portions, then the third Acre, or any part thereof, he cannot give by Will; but must suffer it to descend to the Heir, and that must satisfy Wardship. Yet a Man having three Acres as before, may convey all to his Wife or Children, by Conveyance in his Life-time, as by Feoffment, Fine, Recovery, Bargain and Sale, or Covenant to stand seized to Uses, and to disinherit the Heir. But if the Heir be within Age when his Father dies, the King, or other Ward, shall have that Heir in Ward; and shall have one of the three Acres during the Wardship, and to sue Livery and Seisin. But at full Age the Heir shall have no part of it; but it shall go according to the Conveyance made by the Father.

36. It has been debated how the Thirds shall be set forth. For it is the Use, that all Lands which the Father leaves to descend to the Heir, being Fee-simple, or in Tail, must be part of the Thirds; and if it be a full Third, then the King, nor Heir, nor Lord, can intermeddle with the rest; if it be not a full Third, yet they must take it, so much as it is, and have a Supply out of the rest. This Supply is to be taken thus: if it be the King's Ward, then by Commission out of the Court of Wards; whereupon a Jury, by Oath, must set forth so much as he shall make up the Thirds; except the Officers of the Court of Wards can otherwise agree with the Parties. If there be no Wardship due to the King, then the other Lord is to have this Supply, by a Commission out of the Chancery, and Jury thereupon.

37. But in all these Cases, the Statutes give Power to take him that makes the Will, to set forth and appoint of himself, which Lands shall go for Thirds; and neither King nor Lord can refuse it. And if it be not enough, yet they must take that in part, and only have a Supply in the manner before-mentioned, out of the rest.

S E C T. V.

Of PROPERTY in GOODS.

1. **T**H E several Ways whereby a Man may get Property in Goods or Chattels, are, (1.) by *Gift*; (2.) by *Sale*; (3.) by *Stealing*; (4.) by *Waving*; (5.) by *Straying*; (6.) by *Shipwreck*; (7.) by *Forfeiture*; (8.) by *Executorship*; (9.) by *Administration*; and, (10.) by *Legacy*.

Property by
Gift.

2. By Gift, the Property of Goods may be passed by Word or Writing; but if there be a general Deed of Gift made of all his Goods, this is suspicious to be done upon Fraud, to deceive the Creditors.

3. And

3. And if a Man who is in Debt make a Deed of Gift of all his Goods, to protract the taking of them in Execution for his Debt; this Deed of Gift is void, as against those to whom he stood indebted; but as against himself, his own Executors or Administrators, or any Man to whom afterwards he shall sell or convey them, it is good.

4. By Sale, any Man may convey his own Goods to another; and altho ^{By Sale.} he may fear Execution for Debts, yet he may sell them out-right for Money, at any time before the Execution served; so that there be no Reservation of Trust between them; paying the Money, he shall have the Goods again; for that Trust in such Case, proves plainly a Fraud, to prevent the Creditors from taking the Goods in Execution.

5. If any Man steal my Goods or Chattels, or take them from me in ^{By Theft, or taking in jest.} jest, or borrow them of me, or as a Trespasser or Felon carry them to the Market or Fair, and sell them; this Sale bars me of the Property of my Goods, saving, that if he be a Horse, he must be ridden two Hours in the Market or Fair, between ten and five o'Clock, and toll'd for in the Toll-Book; and the Seller must bring one to avouch his Sale, known to the Toll-Book-Keeper, or else the Sale binds me not. And for any other Goods, where the Sale in a Market or Fair, shall bar the Owner, being not the Seller, of his Property, it must be Sale in a Market or Fair, where usually things of that Nature are sold. As for Example; if a Man steal a Horse, and sell him in *Smithfield*, the true Owner is barred by this Sale; but if he sell the Horse in *Cheapside*, *Newgate*, or *Westminster* Market, the true Owner is not barred by this Sale; because these Markets are usual for Flesh, Fish, &c. and not for Horses.

6. So whereas, by the Custom of *London*, in every Shop there is a Market all the Days of the Week, saving *Sundays* and *Holidays*; yet if a Piece of Plate or Jewel that is lost, or Chain of Gold or Pearl, that is stolen or borrowed, be sold in a Draper's or Scrivener's Shop, or any other but a Goldsmith's, this Sale bars not the true Owner.

7. Yet by stealing alone of Goods, the Thief gets not such Property, but that the Owner may seize them again wherever he finds them; except they were sold in a Fair or Market, after they were stolen; and that, *bona fide*, without Fraud. But if the Thief be condemned of the Felony, or out-law'd for the same, or out-law'd in any personal Action, or have committed a Forfeiture of Goods to the Crown, then the true Owner is without Remedy.

8. Nevertheless, if fresh after the Goods were stolen, the true Owner make Pursuit after the Thief and Goods, and take the Goods with the Thief, he may take them again. And if he make no fresh Pursuit, yet if he prosecute the Felon, so far as Justice requires, that is, to have him arraign'd, indicted, and found guilty, (tho he be not hang'd, nor receive Judgment of Death,) or have him out-law'd upon the Indictment; in all these Cases he shall have his Goods again, by a Writ of Restitution to the Party in whose Hands they are.

9. By waving of Goods, a Property is gotten thus. A Thief having ^{By waving of} stolen Goods, being pursued, flies away and leaves the Goods: This Leav- ^{Goods.} ing

ing is call'd Waving, and the Property is in the King; except the Lord of the Manor have a Right to it by Custom or Charter. But if the Felon be indicted, adjudged, found guilty, or out-law'd, at the Suit of the Owner of these Goods, he shall have Restitution of the Goods as before.

By straying. 10. By straying, Property in live Cattel is thus got. When they come into other Mens Grounds, straying from the Owners, the Party, or Lord, into whose Grounds or Manors they come, causes them to be seized, and a Wythe put about their Necks, and to be cried in three Markets adjoining, shewing the Marks of the Cattle: Which done, if the true Owner claim them not within a Year and a Day, then the Property of them is in the Lord of the Manor, whereto they stray'd; if he have all Strays by Custom and Charter; else to the King.

Wreck. 11. By Shipwreck, Property of Goods is thus got. When a laden Ship is cast away upon the Coasts, so that no living Creature that was in it when it began to sink, escaped to Land with Life; then all those Goods are said to be wreck'd, and they belong to the Crown, if they be found; except the Lord of the Soil adjoining can entitle himself to them by Custom, or by the King's Charter.

Forfeitures. 12. By Forfeitures, Goods and Chattels are thus got. If the Owner be out-law'd; if he be indicted of Felony, or Treason; or either confess it, or be found guilty of it, or refuse to be tried by Peers or Jury; or be attainted by Judgment, or fly for Felony; altho he be not guilty, or suffer the *Exigent* to go forth against him; altho he be not out-law'd, or that he go over the Seas without Licence, all the Goods he had at the Judgment, he forfeits to the Crown; except some Lord by Charter can claim them. For in those Cases Prescript will not serve, except it be so ancient, that it has had Allowance before the Justices in *Eyre*, in their Circuits, or in the King's Bench, in ancient time.

By Executorship. 13. By Executorship, Goods are got, when a Man possessed of Goods makes his last Will and Testament in Writing, or by Word; and makes one or more Executors thereof: These Executors have by the Will and Death of the Parties, all the Property of their Goods, Chattels, Leases for Years, Wardships and Extents; and all Right concerning those things.

14. These Executors may meddle with the Goods, and dispose them before they prove the Will; but they cannot bring an Action for any Debt or Duty, before they have proved the Will.

Proving the Will. 15. The *proving of the Will is thus*. They are to exhibit the Will into the Bishop's Court, and there they are to bring the Witnesses to be sworn, and the Bishop's Officers are to keep the Will original, and certify the Copy thereof, in Parchment, under the Bishop's Seal of the Office: which Parchment so sealed, is called the *Will proved*.

By Letter of Administration. 16. By *Letters of Administration*, Property in Goods is thus got. When a Man possessed of Goods dies without any Will, such Goods as the Executors should have had, if he had made a Will, were by ancient Law to come

come to the Bishop of the Diocese, to dispose for the Good of his Soul that died; he first paying his Funeral and Debts, and giving the rest *ad pios usus*.

17. This is now altered by Statute Laws, so as that the Bishops are to grant Letters of Administration of the Goods at this Day to the Wife, if she require it, or Children, or next of kin: If they refuse it, as they often do, because the Debts are greater than the Estate will bear; then some Creditor, or some other will take it, as the Bishop's Officers shall think meet.

18. It comes often in Question what Bishop has the Right of proving *The Granting* Wills, and granting Administration of Goods: in which Controversy the *of Admini-* Rule is, that if the Party deceased had at the time of his Death *Bona no-* *stration.* *tabilia*, in diverse Dioceses, of some reasonable Value; then the Archbishop of the Province where he died, is to have the *Probat* of his Will, and to grant the Administration of his Goods, as the Case falls out; otherwise the Bishop of the Diocese where he died is to do it.

19. If there be but one Executor made, yet he may refuse the Executorship coming before the Bishop; provided he has not intermeddled with any of the Goods before, or with receiving Debts, or paying Legacies.

20. And if there be more Executors than one, so many as please may refuse; and if any one take it upon him, the rest that did once refuse, may, when they will, take it upon them; and no Executor shall be farther charged with the Debts or Legacies, than the Value of the Goods come to his Hands; provided he foresee that he pay Debts upon Record, first Debts to the King, then upon Judgments, Statutes, Recognizances; then Debts by Bond and Bill sealed, Rent unpaid, Servants Wages, Payment to head Workmen; and lastly, Shop-Books, and Contracts by Word. For if an Executor or Administrator pay the Debts to others before the King, or Debts due by Bond before those due by Record, or Debts by Shop-Books, and Contracts before those by Bond, Arrearages of Rent, and Servants or Workmen's Wages, he shall pay the same over again to those others in the said Degrees. Yet the Law gives them choice, that where diverse have Debts due in equal Degree of Record or Speciality, he may pay which of them he will, before any Suit brought against him; but if Suit be brought, he must first pay them that get Judgment against him.

How Executors are to proceed.

21. Any one Executor may convey the Goods, or release Debts without his Companion; and any one by himself may do as much as all together; but one Man's releasing of Debts, or selling of Goods, shall not charge the other to pay so much of the Goods, if there be not enough to pay Debts; but it shall charge the Party himself that did so release or convey.

22. But it is not so with Administrators: for they have but one Authority given them by the Bishop over the Goods; which Authority being *How Admini-* *nistrators,* given to many, is to be executed by all of them join'd together. And if

an

an Executor die, making an Executor, the second Executor is Executor to the first Testator.

Ordinary,
what.

23. But if an Administrator die intestate, then his Administrator shall not be Executor or Administrator to the first; but in that Case the Bishop, whom we call the *Ordinary*, is to commit the Administration of the first Testator's Goods to his Wife, or next of kin, as if he had died intestate; always provided, that what the Executor did in his Life-time, is to be allowed for Good. And so if an Administrator die, and make his Executor, the Executor of the Administrator shall not be Executor to the first Intestate; but the *Ordinary* must now commit the Administration of the Goods of the first Intestate again.

24. If the Executor or Administrator pay Debts, or Funerals, or Legacies of his own Money; he may retain so much of the Goods in kind, of the Testator or Intestate, and shall have Property of it in kind.

Property by
Legacy.

25. Property by Legacy, is where a Man makes a Will and Executors, and gives Legacies; he or they to whom the Legacies are given, must have the Assent of the Executors, or one of them, to have his Legacy; and the Property of that Legacy, or other Goods bequeathed to him, is said to be in him; but he may not enter, nor take his Legacy without the Assent of the Executors, or one of them; because the Executors are charged to pay Debts before Legacies. And if one of them assent to pay Legacies, he shall pay the Value thereof out of his own Purse; if there be not otherwise sufficient to pay Debts.

26. But this is to be understood by Debts of Record to the King, or by Bill and Bond sealed, as Arrearages of Rent, or Servants or Workmens Wages, and not Debts of Shop-Books, or Bills unsealed, or Contract by Word; for Legacies are to be paid before them.

27. And if the Executors doubt that they shall not have enough to pay every Legacy, they may pay which they please first; but they may not sell any special Legacy, as they please, to pay Debts, or a Lease of Goods to pay a Money Legacy: But they may sell any Legacy they will to pay Debts, if they have not enough besides.

28. If a Man make a Will, and leave no Executors, or if the Executors refuse, the *Ordinary* is to commit Administration, *cum Testamento annexo*, and take Bonds of the Administrator to perform the Will; and he is to do it in such a sort, as the Executor should have done, if he had been named.

S E C T.

S E C T. VI.

CASES of TREASON; *with the TRIAL, PENALTIES, and PROCEEDINGS therein.*

1. **W**HERE a Man compasses or imagines the Death of the King, the King's Wife, the King's eldest Son, and Heir apparent; if it appear by an Overt-act, it is Treason. *Cases of Treason.*
2. Where a Man violates the King's Wife, the King's eldest Daughter unmarried, the Wife of the King's eldest Son, and Heir apparent, it is Treason.
3. Where a Man levies War against the King in the Realm, it is Treason.
4. Where a Man is adherent to the King's Enemies, giving them Aid and Comfort, it is Treason.
5. Where a Man counterfeits the King's Great Seal, Privy Signet, or Sign Manual, it is Treason.
6. Where a Man brings into this Realm false Money, counterfeited to the Likeness of *English*, with an Intent to merchandize, or make Payment thereof, and knowing it to be false Money, it is Treason.
7. Where a Man counterfeits any Coin, current in Payment within this Realm, it is Treason.
8. Where a Man brings in any Money, being current, within the Realm, the same being false and counterfeit, with an Intent to utter it, and knowing the same to be false, it is Treason.
9. Where a Man clips, wastes, rounds, or files, any of the King's Money, or any foreign Coin, current by Proclamation, for Gain's-sake, it is Treason.
10. Where a Man any way impairs, diminishes, falsifies, scales, or lightens Money current by Proclamation, it is Treason.
11. Where a Man kills the Chancellor, the Treasurer, the King's Justices in Eyre, the King's Justices of Assizes, the Justices of Oyer and Terminer, being in their several Places, and doing their Offices, it is Treason.
12. Where a Man procures, or consents to Treason, it is Treason.
13. Where a Man persuades or withdraws any of the King's Subjects from their Obedience, or from the Religion established by his Majesty, with an Intent to draw any from the King's Obedience, it is Treason.
14. Where a Man is absolved, reconciled, or withdrawn from his Obedience to the King, or promises Obedience to any foreign Power, it is Treason.

15. Where any Jesuit, or any other Priest, ordain'd since the first Year of the Reign of Queen *Elizabeth*, shall come into, or remain in any part of the Realm, it is Treason.

16. When any Person being brought up in a College of Jesuits, or Seminary, shall not return within six Months after Proclamation made, and within two Days after his Return, submit himself to take the Oath of Supremacy; if otherwise he do return, and within six Months after Proclamation made, it is Treason.

17. Where a Man committed for Treason, voluntarily breaks Prison, it is Treason.

18. Where a Jailor voluntarily permits a Man committed for Treason to escape, it is Treason.

19. Where a Man relieves, or comforts a Traitor, and knows of the Offence, it is Treason.

20. Where a Man affirms, or maintains any Authority of Jurisdiction spiritual, or puts in Use, or executes any thing for the Advancement or setting forth thereof, the third time, it is Treason.

21. Where a Man refuses to take the Oath of Supremacy, being tendered by the Bishop of the Diocese, if he be any ecclesiastical Person; or by Commission out of the Chancery, if he be a temporal Person; such Offence, the second time, is Treason.

The Punishments and Proceedings in Treason.

22. In Treason, the corporal Punishment is by drawing on a Hurdle, from the Place of Prison, to the Place of Execution, by hanging, and being cut down alive, bowelling and quartering; and in Women, burning.

23. In Treason, here ensues a Corruption of Blood in the Line ascending and descending.

24. In Treason, Lands and Goods are forfeited, and Inheritances, as well entailed, as Fee-simple, and the Profits of Estates for Life.

25. In Treason, the Escheats go to the King, and not to the Lord of the Fee.

26. In Treason, the Land forfeited shall be in the King's actual Possession, without Office.

27. In Treason, there are no Accessaries, but all are Principals.

28. In Treason, no Sanctuary, nor Benefit of Clergy, or peremptory Challenge is allowed.

29. In Treason, if the Party stand mute, yet Judgment and Attainder shall proceed all one as upon Verdict.

30. In Treason, no Counsel is to be allowed; nor Bail permitted to the Party.

31. In Treason, no Witness shall be received upon Oath, for the Parties Justification.

32. In Treason, if the Fact be committed beyond the Seas, yet it may be tried in any County where the King will award his Commission.

33. In Treason, if the Party be *non sane memoria*, yet if he had formerly confessed it before the King's Council, and that it be certified he was

of good Memory at the time of his Examination and Confession ; the Court may proceed to Judgment, without calling or arraigning the Party.

34. In Treason, the Death of the Party before Conviction, discharges all Proceedings and Forfeitures.

35. In Treason, if the Party be once acquitted, he should not be brought again in question for the same Fact.

36. In Treason, no new Case, not expressed in the Statute of 25 Eliz. 3. or made Treason by any special Statute since, ought to be judged Treason, without consulting the Parliament.

37. In Treason, there can be no Prosecution but at the King's Suit ; and the King's Pardon discharges.

38. In Treason, the King cannot grant over to any Subject, Power, and Authority, to pardon it.

39. In Treason, a Trial of a Peer of the Kingdom is to be by special Commission, before the Lord High-Steward ; and those that pass upon him to be none but Peers. The Proceeding is with great Solemnity ; the Lord-Steward sitting under a Cloth of State, with a white Rod of Justice in his Hand ; and the Peers may confer together, but are not any ways shut up ; and are demanded by the Lord-Steward, their Voices one by one : and the Plurality of Voices carries it.

40. It has been an ancient Use and Favour from the Kings of the Realm, to pardon the Execution of Hanging, Drawing, and Quartering ; and to make Warrant for their Beheading.

41. The Proceeding in Case of Treason, with a common Subject, is in the King's Bench, or by Commission of Oyer and Terminer.

42. Where a Man only conceals High-Treason, without any confort-
ing or abetting, it is Misprison of Treason. *Misprison of Treason.*

43. Where a Man counterfeits any foreign Coin of Gold or Silver, not current in the Realm, it is Misprison of Treason.

44. Where a Man fixes an old Seal to a new Patent, it is Misprison of Treason.

45. The Punishment of Misprison of Treason is by perpetual Imprisonment, Loss of the Issues and Profits of Lands during Life ; and the Loss of Goods and Chattels. *Punishment and Proceedings in Misprison of Treason.*

46. The Proceeding and Trial is as in Cases of High-Treason.

47. In Misprison of Treason, Bail is not admitted.

48. Where a Servant kills his Master, the Wife her Husband, the spiritual Man his Prelate, to whom he is subordinate, and owes Faith and Obedience, it is Petty-Treason. *Petty-Treason.*

49. Where a Son kills his Father or Mother, it has been questioned whether it be Petty-Treason ; and the late Experience and Opinion seems to sway to the contrary, tho against Law and Reason, in my Judgment.

50. Where a Servant kills a Master or Mistress, after being put out of Service, it is Petty-Treason.

*Punishment
and Proceedings in Petty-
Treason.*

51. In Petty-Treason, the corporal Punishment is by drawing on a Hurdle, and hanging; and in a Woman, burning.

52. In Petty-Treason, the Forfeiture is the same as in Case of Felony.

53. In Petty-Treason, all Accessaries are but as in Case of Felony.

S E C T. VII.

CASES of FELONY; *with the TRIAL, PUNISHMENT, and PROCEEDINGS therein.*

Cases of Felony.

1. **W**HERE a Man commits Murder, or Homicide, of Malice *pre-pense*, it is Felony.

2. Where a Man commits Murder in breaking of a House, with an Intent to commit Felony, it is Felony.

3. Where a Man commits Man-slaughter, that is, Homicide of sudden Heat, and not of Malice *pre-pense*, it is Felony.

4. Where a Man rides armed with a felonious Intent, it is Felony.

5. Where a Man maliciously and feloniously burns any Man's House, it is Felony.

6. Where a Man maliciously burns Corn upon the Ground, or in the Stack, it is Felony.

7. Where a Man maliciously cuts out another's Tongue, or puts out his Eyes, it is Felony.

8. Where a Man robs or steals, that is, takes away another Man's Goods, to above the Value of 12 *d.* out of his Possession, with an Intent to conceal the same, it is Felony.

9. Where a Man embezzels and withdraws the King's Records at *Westminster*, whereby a Judgment is reversed, it is Felony.

10. Where a Man having the Custody of the Knights Armour, Munition, or other Habiliments of War, maliciously conveys away the same, it is Felony; if it be to the Value of twenty Shillings.

11. Where a Servant has Goods of his Master delivered to him, and goes away with the same, it is Felony.

12. Where a Man conjures or invokes wicked Spirits, it is Felony.

13. Where a Man uses or practises Witchcraft, whereby any Person shall be killed, wasted, or lamed, it is Felony.

14. Where a Man practises any Witchcraft, to discover Treasure hid, or to discover stolen Goods, or to provoke unlawful Love, or to impair or hurt any Man's Cattle or Goods, the second time, having been once before convicted of the like Offence, it is Felony.

15. Where

15. Where a Man uses the Craft of Multiplication of Gold, or Silver, it is Felony^a.
16. Where a Man receives a seminary Priest, knowing him to be such, it is Felony.
17. Where a Man takes away a Woman against her Will, not claiming her as his Ward, or Bond-Woman, it is Felony.
18. Where a Man or Woman marries again, a former Husband or Wife being alive, it is Felony.
19. Where a Man commits Buggery with a Man or Beast, it is Felony.
20. Where any Persons, above the Number of twelve, shall assemble themselves with an Intent to put down Inclosures, or bring down the Prices of Victuals, and do not depart after Proclamation, it is Felony.
21. Where a Man shall use any Words to encourage, or draw People together, as above, and they assemble accordingly, and do not depart after Proclamation, it is Felony.
22. Where a Man, being the King's sworn Servant, conspires to murder any Lord of the Realm, or any Privy-Counsellor, it is Felony.
23. Where a Recusant, which is a Seducer, Persuader, and Inciter of the King's Subjects against the King's Authority, in ecclesiastical Causes, or a Persuader of Conventicles, shall refuse to abjure the Realm, it is Felony.
24. Where Vagabonds are found in the Realm, calling themselves Egyptians, it is Felony.
25. Where a Purveyor takes without Warrant, or otherwise offends against certain special Laws, it is Felony.
26. Where a Man hunts in any Forest, Park, or Warren, by Night or by Day, with Vizard or Disguise, and is examined thereof, and conceals his Fact, it is Felony.
27. Where any one steals certain Kinds of Hawks, it is Felony.
28. Where a Man commits Forgery the second time, having been once before convicted, it is Felony.
29. Where a Man, being imprisoned, breaks Prison, it is Felony.
30. Where a Man procures or consents to Felony, it is Felony; so as to make him accessory before the Fact.
31. Where a Man receives or relieves a Felon, it is Felony; so as to make him accessory after the Fact.
32. Where a Woman, by Constraint of her Husband, in his Presence, joins with him in committing of Felony, it is not Felony in her, either as Principal, or as Accessary.
33. Homicide, or the killing of a Man, is to be considered in four kinds; viz. (1.) Chance-Medley. (2.) *Se defendendo*. (3.) Man-slaughter. (4.) Wilful Murder.
34. In Felony, the corporal Punishment is hanging; and it is doubtful ^{Punishment} whether the King may turn it into beheading in the Case of a Peer, or other of Felony. Person of Dignity; because in Treason the striking off the Head is Part of

^a This was repealed by the Intercession of Mr. Boyle.

of the Judgment; and so the King pardons the rest: but in Felony, it is no Part of the Judgment, and the King cannot alter the Execution of the Law; yet Precedents have been both Ways: if it be upon Indictment, the King may; but upon an Appeal, he cannot.

35. In Felony, there follows Corruption of Blood, except it be in Cases made Felony by special Statutes; with a Proviso that there shall be no Corruption of Blood.

36. In Felony, Lands, in Fee-simple, and Goods and Chattels are forfeited, and the Profits of Estates for Life, but not Lands entail'd: and by some Customs, Lands in Fee-simple are not so forfeited. *The Father to the Bough, the Son to the Plough*, as in *Gavelkind*, in *Kent*, and other Places.

37. In Felony, the Escheats go to the Lord of the Fee, and not to the King; except he be Lord: but Profits for the Estates for Lives, or in Tail, during the Life of Tenant in Tail, go to the King; and the King has likewise *annum, & diem, & vasum*.

38. In Felony, Lands are not in the King before Office, nor in the Lord before Entry or Recovery, in a Writ of Escheat, or Death of the Party attainted.

39. In Felony, there can be no Proceeding with the Accessary, before there is a Proceeding with the Principal: if he die, or plead his Pardon, or have his Clergy before Attainder, the Accessary can never be dealt with.

40. In Felony, if the Party stand mute, and will not put himself upon Trial, or challenge peremptorily above that the Law allows, he shall have Judgment, not of hanging, but of pressing to Death; but there he saves his Lands, and forfeits only his Goods.

41. In Felony, at the Common Law, the Benefit of the Clergy, or Sanctuary, was allowed; but now, by Statute, it is taken away in most Cases.

42. In Felony, Bail may be admitted where the Fact is not notorious, and the Person not of an ill Name.

43. In Felony, no Council is to be allowed the Party; no more than in Treason.

44. In Felony, if the Fact be committed beyond the Seas, or upon the Seas, *super altum mare*, there is no Trial at all in one Case, nor by Course of Jury in the other, but by the Jurisdiction of the Admiralty.

45. In Felony, no Witness shall be received upon Oath for the Party's Justification, no more than in Treason.

46. In Felony, if the Party be *non sane memorie*, altho it be after the Fact, he cannot be tried nor adjudged, except it be in Course of Outlawry; and that is also erroneous.

47. In Felony, the Death of the Party before Conviction discharges all Proceedings and Forfeitures.

48. In Felony, if the Party be once acquitted, or in Peril of Judgment of Life lawfully, he shall never be brought in question again for the same Fact.

49. In

49. In Felony, the Prosecution may be either at the King's Suit, or by way of Appeal; the Defendant having his Course, and producing Witnesses upon Oath, as in Civil Causes.

50. In Felony, the King may grant Hault-justice to a Subject, with the Regality of Power to pardon it.

51. In Felony, the Trial of Peers is all one as in Case of Treason.

52. In Felony, the Proceedings are in the King's Bench, or before the Commissioners of *Oyer and Terminer*, or of Goal-delivery; and in some Cases before the Justices of the Peace.

53. In the Civil and other Laws, they make a Difference in Cases of *Felony de se*, *Felony de se*; for where a Man is call'd in Question upon any capital Crime, and kills himself to prevent the Law; there they give the Judgment in all Points of Forfeiture, as if he had been attainted in his Lifetime: and on the other side, where a Man kills himself upon Impatience of Sickness, or the like, they do not punish it at all: but the Law of *England* takes it all in one Degree, and punishes only with the Loss of Goods to be forfeited to the King, who generally grants them to his Almoner, where they are not formerly granted to special Liberties.

54. Where a Man purchases or accepts any Provision, that is, Collation of any spiritual Benefice, or Living, from the See of *Rome*, it is *Premunire*. *Cases of Premunire.*

55. Where a Man shall purchase any Process, to draw People off the King's Allegiance out of the Realm, in Plea whereof the Cognizance pertains to the King's Court, and comes not in Person to answer his Contempt in that Behalf, before the King and his Council, or in his Chancery, it is *Premunire*.

56. Where a Man sues in any Court, which is not the King's Court, to defeat or impeach any Judgment given in the King's Court, and appears not to answer his Contempt, it is *Premunire*.

57. Where a Man purchases, or pursues in the Court of *Rome*, or elsewhere, any Process, Sentence of Excommunication, Bull, or Instrument, or other thing which touches the King in his Regality, or his Realm in Prejudice, it is *Premunire*.

58. Where a Man maintains or affirms any foreign kind of Jurisdiction spiritual, or puts in Use or Execution, any thing for the Advancement or setting forth thereof; such Offence, the second time committed, is *Premunire*.

59. Where a Man refuses to take the Oath of Supremacy, being tendered by the Bishop of the Diocese, if it be an ecclesiastical Person; or by a Commission out of the Chancery, if it be a temporal Person; it is *Premunire*.

60. Where a Dean and Chapter of any Church, upon the *Conge d'slire* of an Archbishop, or Bishop, refuse to elect any such Archbishop or Bishop nominated to them in the King's Letters Missive, it is *Premunire*.

61. Where

61. Where a Man contributes, or gives Relief to any Jesuit or Seminary Priests, or to any Person brought up among them, and call'd home, and not returning, it is *Premunire*.

62. Where a Man is a Broker of an usurious Contract, above ten in the hundred, it is *Premunire*.

The Punishment and Proceedings in Cases of Premunire.

63. The Punishment in Cases of *Premunire*, is by Imprisonment during Life, Forfeiture of Goods, Forfeiture of Lands in Fee-simple, and Forfeiture of the Profits of Lands entail'd, or for Life.

64. The Trial and Proceeding is the same as in Cases of Misdemeanor of Treason; and the Trial is by Peers, where a Peer of the Realm is the Offender.

65. Striking any Man in the Face of the King's Courts, is Forfeiture of Land, perpetual Imprisonment, and Loss of that Land.

Cases of Abjuration and Exile, with the Proceedings thereon.

66. Where a Man commits any Felony, for which at this Day he may have Privilege of Sanctuary, and confesses the Felony before the Coroner, he shall abjure the Liberty of the Realm, and choose his Sanctuary; and if he commit any new Offence, or leave his Sanctuary, he shall lose the Privilege thereof, and suffer as if he had not taken Sanctuary.

67. Where a Man, not coming to the Church, and being a Popish Recusant, persuades any the King's Subjects to impugne his Majesty's Authority in Causes ecclesiastical, or shall persuade any Subject to come to any unlawful Conventicle, and shall not after conform himself within a time, and make his Submission, he shall abjure the Realm, and forfeit his Goods and Lands during Life; and if he depart not within the time prefixed, or return, he shall be in the Degree of a Felon.

68. Where a Man, being a Popish Recusant, and not having Lands to the Value of twenty Marks *per annum*, nor Goods to the Value of 40*l*. shall not repair to his Dwelling, or Place where he was born, and there confine himself within the Compass of five Miles, he shall abjure the Realm; and if he return, he shall be in the Case of a Felon.

69. Where a Man kills the King's Deer in Chases or Forests, and can find no Sureties after a Year's Imprisonment, he shall abjure the Realm.

70. Where a Man is a Trespasser in Parks, or in Ponds of Fish, and after three Years Imprisonment cannot find Sureties, he shall abjure the Realm.

71. Where a Man is a Ravisher of any Child, whose Marriage belongs to any Person, and marries the said Child after Years of Consent, and is not able to satisfy for the Marriage, he shall abjure the Realm.

Cases of Heresy, and the Proceedings thereon.

72. The Declaration of Heresy, and likewise the Proceedings and Judgment upon Hereticks, is by the Common Laws of this Realm referred to the Jurisdiction ecclesiastical; and the secular Arm is reached to them by the Common Laws, and not by any Statute for the Execution of them by the King's Writ *de Heretico comburendo*.

S E C T. VIII.

The PREROGATIVES of the CROWN.

1. **T**HE King has an absolute negative Voice to all Bills that pass the Parliament; so that without his royal Assent, they have a mere Nullity, and not so much as the *Authoritas prescripta*, or *Senatus Consultum* had, notwithstanding the Intercession of the Tribunes. *The King's Prerogative in Parliament.*
2. The King may summon Parliaments, dissolve them, prorogue them, and adjourn them, at his Pleasure.
3. The King may add Voices in the Parliament at his Pleasure; for he may give Privilege to Borough-Towns, as many as he will; and may likewise call and create Barons, at his Pleasure.
4. No Man can sit in Parliament, except he take the Oath of Allegiance.
5. The King has Power to declare and proclaim War; and to make and conclude Peace and Truce, at his Pleasure. *In Matters of Peace and War.*
6. The King has Power to make Leagues and Confederacies with foreign States, more strict and less strict; and to revoke and disannul them, at his Pleasure.
7. The King has Power to command the Bodies of his Subjects for the Service of his Wars; and to muster, train, and levy Men; and to transport them by Sea or Land, at his Pleasure.
8. The King has Power, in time of War, to execute martial Law, and to appoint all Officers of War, at his Pleasure.
9. The King has Power to grant his Letters of Mart, and Reprisal, for Remedy to his Subjects upon foreign Wrongs, at his Pleasure.
10. The King has Power to declare Laws, by his Letters Patent, for the Government of any Place, conquered by his Arms, at his Pleasure.
11. The King may give Knight-hood; and thereby enable any Subject to perform Knight's-Service, at his Pleasure.
12. The King may alter his Standard, in Baseness or Fineness of Coin, at his Pleasure. *In Matters of Money.*
13. The King may alter his Stamp, in form, at his Pleasure.
14. The King may alter the Valuations of his Coin; and raise and fall Money, at his Pleasure.
15. The King, by his Proclamation, may make Money of his own current, or not current, at his Pleasure.
16. The King may take or refuse the Subjects Bullion; and coin more or less Money.
17. The King, by his Proclamation, may make foreign Money current or not current.
18. The

*In Matters of
Trade and
Traffick.*

18. The King may restrain the Person of any of his Subjects not to go out of the Realm.

19. The King may constrain any of his Subjects to go out of the Realm, into any foreign Parts.

20. The King may forbid the Exportation of any Commodities out of the Realm.

21. The King may forbid the Importation of any Commodities into the Realm.

22. The King may set a reasonable Impost upon any foreign Wares that come into the Realm; and so of native Wares that go out of the Realm.

*In the Per-
sons of his
Subjects.*

23. The King may create any Corporation or Body politic, and enable them to purchase, grant, sue, and be sued; and that with such Restriction and Modification as he pleases.

24. The King may denizen and enable any Foreigner, for him and his Descendants after the Charter; tho he cannot naturalize, nor enable him to make Pedigree from Ancestors Paramount.

25. The King may enable any attainted Person, by his Charter of Pardon, to purchase, and to purge his Blood, for the time to come; tho he cannot restore his Blood for the time past.

26. The King may enable any Persons dead in Law, as Men professed, to take and purchase to the King's Benefit.

S E C T. IX.

Of the NATURE and OFFICE of GRAND-JURIES; particularly the JURY of the VERGE.

*The Office of
Grand Ju-
ries.*

1. **I**T is the happy State of the Subject of *England*, not to be impeached in his Life, Lands, or Goods, by flying Rumours, wandering Fables and Reports, or secret and private Inquisitions; but by the Oath and Presentment of Men of honest Condition, in the Face of Justice. But this happy State of the Subject will turn to Inconvenience, if *Grand Juries* shall be negligent, or remiss, in their Duty: For as of the two Evils it were better that Mens Actions should be severely examined, than that there should be a notorious Impunity of Malefactors; or as it was justly said, it were better living where nothing is lawful, than where all things are lawful; it is the Office of *Grand Juries* to discover and prosecute Offences: For it is with them that Justice begins. And the Law cannot pursue and chase Offenders to their deserved Fall, unless these Juries put them up and discover them; whereby they may be brought to answer.

swer. For the Juries Verdict is concluding to condemn : But it is first necessary to charge ; and without it the Court cannot proceed to condemn.

2. Considering, therefore, that they are the Eye of Justice, they ought to be single, without partial Affection ; watchful, not asleep, nor false asleep, winking at Offenders : and they ought to be sharp-sighted, to proceed with Understanding and Discretion. For if they shall not present to the Court all such Offences, as shall appear to them, either by Evidence given in, or otherwise of their own Knowledge, to have been committed within the Verge ; which is, as it were, the Limits of their Survey ; but shall smother and conceal any Offence willingly ; then the Guilt of others will cleave to their Consciences before God : and besides, they are answerable, in some Degree, to the King and his Law, for such their Default and Suppression. But there is a greater Reason why they should take more especial Regard to their Presentments, than other Grand Juries within the Counties of *England* at large ; for as it is a nearer Degree and Approach to the King, who is the Fountain of Justice and Government, to be the King's Servant, than to be the King's Subject ; so this Commission, ordained for the King's Servants and Household, ought, in the Execution of Justice, to be exemplary to other Places. *David* (who was a King) saith, *The wicked Man shall not abide in my House* ; as well observing, that tho it was impossible for Kings to banish Wickedness, by extending their utmost Power and Care over all their Land, or Empire ; yet, at least, they ought to undertake to God for their own House.

3. The Law so esteems the Dignity of the King's settled Mansion-House, that it has laid to it a Plot of twelve Miles round, which we call the *Verge*, subject to a special exempted Jurisdiction, depending upon his Person and great Officers. This is as a *Half-Pace*, or *Carpet*, spread about the King's Chair of State ; which therefore ought to be cleared and void, more than other Places of the Kingdom : for if Offences shall be shrouded under the King's Wings, what Hope is there of Discipline and Justice in the more remote Parts ? When the Sun is at the brightest, there may perhaps be a Bank of Clouds in the North, or the West, or remote Regions ; but near his Body few or none : for where the King comes, there should come Peace and Order, and an Awe and Reverence in Mens Hearts.

4. And this Jurisdiction was in ancient time executed, and since by Statutes ratified, by the *Lord Steward*, with great Ceremony, in the Nature of a *peculiar King's Bench* for the *Verge* ; for it was thought a kind of eclipsing to the King's Honour, that where the King was, any Justice should be sought, but immediately from his own Officers. But in respect that Office was often void, this Commission has succeeded : which Change, tho it hath less State, yet it has more Strength legally ; whence Juries of the Verge are to leave and give a Pattern to others, in the Care and Conscience of their Presentments.

5. The Offences to be presented are of four kinds.

- (1.) The first, such as concern God and his Church.
- (2.) The second, such as concern the King and his State.

N n 2

3. The

*Particular
Office of the
Jury of the
Verge.*

*The Verge,
what.*

*How regulated
anciently.*

*The Offences
to be presented.*

(3.) The third, such as concern the King's People, and are capital.

(4.) The fourth, such as concern the King's People, and are not capital.

Regard

God and the Church.

6. (1.) The Service of Almighty God, upon whose Blessing the Peace, Safety, and good Estate of the King and Kingdom depends, may be violated, and God dishonoured, in three manners; viz. (1.) by Profanation; (2.) by Contempt; and, (3.) by Division, or Breach of Unity.

Profanation.

7. First, if any Man has depraved or abused, in Word or Deed, the blessed Sacrament, or disturbed the Preacher, or Congregation, in the time of divine Service; or if any have maliciously stricken with Weapon, or drawn a Weapon in any Church or Church-yard; or if any Fair or Market have been kept in any Church-yard; these are Profanations within the Purview of several Statutes; and these the Juries are to present: for holy Things, Actions, Times, and sacred Places, are to be preferred in Reverence and divine Respect.

Contempts of the Church.

8. For Contempts of our Church and Service, they are comprehended in that known Name, which too many bear, *Recusancy*: which Offence has many Branches and Dependencies: the Wife-Recusant tempts; the Church-Papist feeds and relieves; the corrupt Schoolmaster sows Tares; the Disssembler conforms, and does not communicate.

9. Therefore, if any Person, Man or Woman, Wife or Soul, above the Age of sixteen Years, not having some lawful Excuse, have not repaired to Church according to the several Statutes; the one for the weekly, the other for the monthly Repair; both the Offence, and the time how long, are to be presented.

10. Again, such as maintain, relieve, or keep Recusants in Service of Livery, tho themselves be none, are also to be presented; for these are like the Roots of Nettles, which sting not themselves, but bear and maintain the stinging Leaves. Understand the same if any one keeps a Schoolmaster, who comes not to Church, or is not allowed by the Bishop; and so of such Recusants as have been convicted and have conformed, yet do not receive the Sacrament once a Year; for that is the Touchstone of their true Conversion: and of these Offences of Recusants, especial Regard is to be taken. Twelve Miles from Court is no Region for such Subjects. Why should not twelve Miles about the King's Chair be as free from Papist Recusants, as twelve Miles from the City of *Rome*, the Pope's Chair, is from Protestants? There may be Hypocrites and Atheists; but no open Contempt of their Religion is endured.

Divisions and Breach of Unity.

11. For Matter of Division and *Breach of Unity*; it is not without a Mystery that Christ's Coat had no Seam: no more should the Church, if it were possible. Therefore if any Minister refuses the Book of Common-Prayer, or wilfully swerveth in divine Service from that Book; or if any Person whatsoever do scandalize that Book, and speak openly and maliciously in Derogation of it; such Men do but make a Rent in the Garment; and such are to be enquired of. But much more such as are not only

only differing, but in a manner opposite to it ; by using a superstitious and corrupt Form of divine Service ; I mean such as say or hear Mass.

12. These Offences recited are against the Service and Worship of God : there remain two, which likewise pertain to the Dishonour of God ; the one is the Abuse of his Name by Perjury ; the other is the adhering to God's declared Enemies, evil and out-cast Spirits, by Conjurat[i]on and Witchcraft.

13. For Perjury ; it is hard to say whether it be more odious to God, or *Perjury* pernicious to Man ; for an Oath, saith the Apostle, *is the End of Controversies* : if therefore that Boundary of Suits be taken away, or misplaced, where shall be the End ? Therefore wilful and corrupt Perjury is to be enquired of, in any of the King's Courts, even the Court-Barons, and the like ; and that as well of the Actors, as of the Procurers and Suborners.

14. For Witchcraft ; by the former Law it was not Death, except it were actual and gross Invocation of evil Spirits, or making Covenant with them ; or taking away Life by Witchcraft : but now by an Act I *Conjurat[i]on and Witchcraft* Jacob. Charms and Sorceries, in certain Cases of procuring unlawful Love, or bodily Hurt, are made Felony, the second Offence ; the first being Imprisonment and Pillory.

15. (2.) All the late Statutes which inflict capital Punishment upon Extol-*Offences* lers of the Pope's Supremacy, Denyers of the King's Supremacy, Jesuits *against the State* and Seminaries, and other Offenders of that Nature, have for their principal Scope, not the Punishment of the Error of Conscience ; but the repressing of the Danger of the State. This is the true Spirit of the Laws, and therefore such Offences are to be placed under the Offences that concern the King and his State.

16. These Offences, therefore, respect either the Safety of the King's Person, or the Safety of his State and Kingdom ; which tho they cannot be discovered in Deed, yet they may be distinguished in Speech. First then, if any have conspired against the Life of the King, or the Queen's Majesty, or of the Prince their eldest Son ; the very Compassing, and Imagination thereof, is High-Treason ; if it can be proved by any Fact that is overt : for in the Case of so sudden, dark, pernicious, and peremptory Attempts, it were too late for the Law to take a Blow before it gives : and this High-Treason, of all others, is most heinous ; of which Juries are to enquire.

17. There is another capital Offence, that hath an Affinity with this, *Privy-Counsellors* whereof Juries within the Verge are most properly to enquire. The King's Privy-Council are as the principal Watch over the Safety of the King ; so that their Safety is a Portion of his : If, therefore, any of the King's Servants within his Chequer-Roll (for to them only the Law extends) have conspired the Death of any of the King's *Privy-Council*, this is Felony.

18. The King's Person and Authority is represented in three things ; *The King's Person represented three Ways* viz. in his Seals, in his Monies, and in his principal Magistrates : if, therefore, any have counterfeited, clipped or scaled his Monies, or other Monies current,

rent, this is High-Treason. So likewise to kill certain great Officers, or Judges, executing their Office.

Treasons of
three kinds.

19. The Treasons which concern the Safety of the King's State, are of three kinds; answering to three Dangers, which may happen to a State. These Dangers are foreign Invasions, open Rebellion, or Sedition; and privy Practice, to alienate and estrange the Hearts of the Subject; and to prepare them either to adhere to Enemies, or to burst out into Tumults and Commotions of themselves.

Invasion and
Rebellion.

20. Therefore, if any Person have solicited or procured an Invasion from Foreigners; or if any have combined to raise and stir the People to Rebellion within the Realm; these are High-Treason, tending to the Overthrow of the State; and to be enquired of.

Alienation of
Hearts.

21. The third Particular, or Privy Practice, hath diverse Branches, but one principal Root, which is the vast and over-spreading Ambition and Usurpation of the See of *Rome*; for the Pope of *Rome* is, according to his last Challenge and Pretences, become a Competitor with the King, for the Hearts and Alienations of the People; and would make them as Fewel ready to take fire upon any of his Commands. This is that Yoke which *England* happily cast off, even at such time when the Popish Religion was nevertheless continued; and which diverse States, that were the Pope's Vassals, begin to shake off.

Cases of
Treason.

22. If, therefore, any Person have maintained and extolled the usurped Authority of the Bishop of *Rome*, within the King's Dominions, by writing, preaching, or Deed advisedly, or directly and maliciously: or if any Person have withdrawn and reconciled any of the King's Subjects; or if any Subject hath refused, the second time, to take the Oath of Supremacy lawfully tendered; or if any Jesuit or Seminary come and abide in *England*; these are, by several Statutes, made Cases of Treason: the Law accounting these things as Preparatives, and the secret Motions of Seditions and Revolts. And these are to be enquired of, both as to the Receivers, Maintainers, Concealers, &c. as well as the Principal. In some Cases it is Misprision of Treason; and in some others, Felony; as namely, that of relieving Jesuits and Priests. The bringing in and dispersing of *Agnus Dei*, Crosses, Pictures, or such Trash, is likewise *Premunire*: and so is the Denial to take the Oath of Supremacy the first time.

Military
Men.

23. And because in the Disposition of a State to Troubles and Perturbations, military Men are the most dangerous; therefore, if any of the King's Subjects go over to serve in foreign Parts, and do not first endure the Touch, that is, take the Oath; or if they have bore Office in any Army, and do not enter into Bond, with Sureties, as is prescribed; this is made Felony: and of such the Juries are to enquire.

Prophecies.

24. Lastly, Because the Vulgar are sometimes led with vain and fond Prophecies; if any such shall be published, to the end to move Stirs, or Tumults, this is not Felony; but punished by a Year's Imprisonment and Loss of Goods: and of this also the Juries are to enquire.

25. The

25. The Escape of any Prisoner committed for Treason, is Treason ; whereof the Juries are likewise to enquire.

26. (3.) The third part of the Division relates to those Offences which concern the King's People, and are capital; which nevertheless the Law terms Offences against the Crown, in respect of the Protection that the King affords his People; and the Interest he has in them and their Welfare: for touch them, and you touch the King. These Offences are of three Natures; the first concerns the Preservation of their Lives; the second the Honour and Honesty of their Persons and Families; and the third their Substance.

Capital Offences relating to the People.

27. First for Life. In general, Life is grown so cheap in these Times, as to be set at the Price of Words; and every petty Scorn and Disgrace can have no other Reparation: nay, so many Mens Lives are taken away with Impunity, that the very Life of the Law is almost taken away with the Execution; and therefore, tho Life cannot be restored to those Men that are slain; yet the Law may be restored to Life, by proceeding with due Severity against the Offenders: and especially the Plot of Ground, which is the King's Carpet, ought not to be stained with Blood, crying in the Ears of God and the King. It is true nevertheless, that the Law does make diverse just Differences of Life taken away; but yet no such Differences as the wanton Humours and Braveries of Men have, under a reverend Name of Honour and Reputation, invented*.

Murder.

28. The highest Degree is, where such an one is killed, to whom the Offender bore Faith and Obedience; as the Servant to the Master, the Wife to the Husband, the Clerk to the Prelate, and the Child to the Father and Mother: and this the Law terms Petty-Treason.

Petty-Treason.

29. The second is where a Man is slain upon fore-thought Malice, which the Law terms Murder; and it is an Affront horrible and odious, and cannot be blanced.

30. The third is, where a Man is killed upon a sudden Hear or Affray, whereunto the Law gives some little Favour; because a Man in Fury is not himself. *Ira furor brevis*; Wrath is a short Madness. And the Wisdom of the Law has made a Difference of the Stab given, where the Party stabb'd is out of Defence, and had not given the first Blow, from other Man-slaughters.

Man-slaughter.

31. The fourth Degree is that of killing a Man in the Party's own Defence, or by Misadventure; which tho they be not Felonies, yet the Law does not suffer them to go unpunished; because it kindles Sparks of a bloody Mind in the one, and Defence in the other.

32. And the fifth is, where the Law admits Fortification; not by Plea, (for a Man that sheds Blood, may not justify the Fact with pleading not guilty) and the Case is found by Verdict, being disclosed upon the Evidence; as where a Man in the King's Highway and Peace, is assailed to be murdered or robbed; or when a Man defending his House, which is his Castle, against unlawful Violence; or when a Sheriff or Minister of Justice,

* See the Author's Speech against Duelling, Vol. I. pag. 393.

tice, is resisted in the Execution of his Office; or when the Patient dies in the Chirurgeon's Hands, upon cutting, or otherwise: for these Cases the Law privileges; because of the Necessity, and because of the Innocency of the Intention. And thus much for the Death of Man; of which Cases the Juries are to enquire, together with the Accessaries before and after the Fact.

Rapes, double
Marriages,
&c.

33. For the *second* kind, which concerns the Honesty and Chastity of Persons and Families; the Juries are to enquire of the Ravishment of Women; of the taking of Women out of the Possession of their Parents, or Guardians, against their Will; or marrying or abusing them, or double marrying, where there was not first seven Years Absence, and no notice that the Party so absent was alive; and other Felonies against the Honesty of Life.

Robberies.

34. For the *third* kind, which concerns Mens Substance; the Juries shall enquire of Burglaries, Robberies, cutting of Purfes, and taking of any thing from the Person; and generally of all other Stealths, as well such as are plain, as those that are disguised. But first they are to use Diligence in presenting, especially those Purloinings and Imbezzlements, which are of Plate, Vessels, or whatsoever else, within the King's House. The King's House is an open Place; it ought to be kept safe by Law, and not by Lock: and therefore requires the more Severity.

35. Now for coloured or disguised Robberies; to name two or three of them; the Purveyor that takes without Warrant is no better than a Thief; and it is Felony. The Servant that has the keeping of the King's Goods, and goes away with them, tho he came to the Possession of them lawfully, it is Felony. Of these the Juries are to enquire, Principal and Accessaries. The voluntary escape of a Felon is also Felony.

Offences a-
gainst the Peo-
ple that are
not capital.

36. (4.) For the last Part, which is of Offences concerning the People, there are many: they are of three Natures.

(1.) The first is Matter of Force and Outrage.

(2.) The second, Matter of Fraud and Deceit.

(3.) The third, Breach and Non-observance of certain wholesome and politic Laws for Government.

Force.

37. For the first; the Juries shall enquire of Riots and unlawful Assemblies; of forcible Entries and Detainers with Force; and properly of all Assaults of striking, drawing Weapons, or other Violence, within the King's House, and the Precincts thereof; for the King's House, (from whence Examples of Peace should flow into the farthest part of the Kingdom, as the Ointment of Aaron's Head to the Skirts of his Garment,) ought to be sacred, and inviolate from Force and Brawls; as well in respect of Reverence to the Place, as in respect of Danger and Trouble; and of setting an Example to the whole Kingdom: and therefore in that Place, all should be full of Peace, Order, Regard, Forbearance, and Silence.

Exactions.

38. Besides open Force, there is a kind of Force coming with an open and armed Hand, but disguised; tho no less hateful and hurtful; and that is, At use and Oppression by Authority.

39. And

39. And therefore the Juries are to enquire of all Extortions in Officers and Ministers; as Sheriffs, Bailiffs of Hundreds, Escheators, Coroners, Constables, Ordinaries, and others, who by Colour of Office do poll the People.

40. For Frauds and Deceits; those chiefly commended to the Care of *Frauds*. Juries, are the Frauds and Deceits in what is the chief Means of all just Contracts and Permutation; viz. Weights and Measures; wherein, tho God has pronounced that false Weight is an Abomination, yet the Abuse is so common and general, that if a Man were to build a Church, he need but take the false Weights, that may be every where found near at hand; the Weights, or Piles, of Brasses to make the Bells, and the Weights of Lead to make the Battlements: and herein Juries are to make special Enquiry, whether the Clerk of the Market within the Verge, to whom it properly appertains, have done his Duty.

41. For Nuisances and Grievances; Juries are to present the Decays *Nuisances and Grievances*. of Highways and Bridges; for where the Majesty of the King's House draws Recourse and Access, it is both disgraceful to the King, and burthen some to the People, if the Ways near about be not fair and good: wherein it is strange to see the chargeable Pavement and Causeways in the Entrance of Towns abroad, beyond the Seas; whereas *London*, the second City, at least, *of Europe*, in Glory, in Greatness, and in Wealth, cannot be discerned by the Goodness of the Ways, tho a little perhaps by the Broadness of them, from a Village.

42. For the last Part, three Laws are to be regarded by the Juries.

Breach of Statutes.

(1.) The one concerning the King's Pleasure.

(2.) The second, concerning the People's Food.

(3.) And the third, concerning Wares and Manufactures.

43. The Juries shall therefore enquire of the unlawful taking of *Killing the* *King's Game*. *Patridges* and Pheasants, or Fowls; the Detraction of the Eggs of the said Wild Fowl; the killing of Hares or Deer; and the stealing of Venison or Hares: for that which is for Exercise and Sport, and Courtesy, should not be turned to Gluttony, and Sale-Victuals.

44. The Juries shall also enquire whether Bakers and Brewers keep their *Food*. Affize; and whether as well they as Butchers, Innholders, and Victuallers, do sell that which is wholesome, and at reasonable Prices; and whether they do link and combine to raise Prices.

45. Lastly, the *Juries* are to enquire whether the good Statute be observed, whereby a Man may have what he thinks he hath, and not be *Manufactures*. abused in what he buys; that is, the Statute requiring that none use any manual Occupation, but such as have been seven Years Apprentice to it: which Law being generally transgressed, makes the People buy, in Effect, Chaff for Corn; for that which is ill-wrought will wear ill.

S U P P L E M E N T XVI.
C H A R A C T E R I S T I C K S
O F A
B e l i e v i n g C H R I S T I A N ;
I N
P A R A D O X E S ,
A N D
S e e m i n g C O N T R A D I C T I O N S .

O o 2

P R E .

P R E F A C E.

SOME Advertisement may be necessary to prevent a Misconstruction of the present Paper. When rightly considered, it appears no way ludicrous, sarcastical, or prophane: but, with a particular Address, to be levelled against that well-meant, but perhaps erroneous Practice, of mixing Faith and Reason, or Revelation and Philosophy, together; which the Author apprehended made an heretical Religion, and a superstitious Philosophy. Certainly, it may well deserve to be considered, whether Reason and Revelation are not two Things, that should be kept separate, for the mutual Service of both; the true Ends of Religion; and the Advantage of civil Society: and whether a contrary Procedure does not occasion Heresies, foment Disputes and Divisions, rend the Church, disturb Governments, and stop the Progress of Philosophy.

^a See *de Augment. Scientiar.* p. 262, and the *Novum Organum*, pag. 363, 386, &c.



C H A-

CHRISTIAN PARADOXES

CHARACTERISTICKS

OF A

Believing CHRISTIAN.

1. **A** Christian is one who believes such Things as his Reason cannot comprehend ; hopes for Things he never saw ; and labours for what he knows he shall not obtain : yet in the Issue, his Belief appears not to be false ; his Hope makes him not ashamed ; his Labour is not in vain.
2. He believes Three to be One, and One to be Three ; a Father not to be older than his Son ; a Son to be equal with his Father ; and One proceeding from both, to be equal with both : as believing three Persons in one Nature ; and two Natures in one Person.)
3. (He believes a Virgin to be the Mother of a Son ; and that very Son of hers to be her Maker. He believes him to have been shut up in a narrow Cell, whom Heaven and Earth could not contain. He believes him to have been born in time, who was, and is, from everlasting. He believes him to have been a weak Child, and carried in Arms, who is the Almighty ; and him once to have died, who alone has Life and Immortality in himself.)
4. He believes the God of all Grace to have been angry with One that never offended him ; and God who hates Sin, to be reconciled to himself, tho sinning continually ; and never making, or being able to make him Satisfaction. He believes a most just God to have punished a most just Person ; and to have justified himself, tho a most ungodly Sinner. He believes himself freely pardoned ; and yet a sufficient Satisfaction was made for him.)
5. He believes himself to be precious in God's Sight ; and yet loaths himself in his own. He dares not justify himself, even in those things wherein he can find no Fault with himself ; and yet believes God accepts him in those Services, wherein himself is able to find many Faults.)
6. He praises God for his Justice ; yet fears him for his Mercy. He is so ashamed, that he dares not open his Mouth before God ; and yet he comes

comes with Boldness to God, and asks him any thing he needs. He is so humble as to acknowledge himself to deserve nothing but Evil; yet he believes that God means him all Good. He fears always; yet is bold as a Lion. He is often sorrowful, yet always rejoicing; many times complaining, yet always giving of Thanks. He is the most lowly-minded, yet the greatest Aspirer; most contented, yet ever craving.

7. He bears a lofty Spirit in a mean Condition. When he is ablest, he thinks meanest of himself. He is rich in Poverty, and poor in the midst of Riches. He believes all the World to be his; yet takes nothing without special Leave from God. He covenants with God for nothing; yet looks for a great Reward. He loses his Life, and gains by it; and whilst he loses it, he saves it.

8. He lives not to himself; yet of all others he is most wise for himself. He denies himself often; yet no Man loves himself better. He is most reproached, yet most honoured. He has most Afflictions, and most Comforts.

9. The more Injury his Enemies do him, the more Advantages he gains by them. The more he forsakes worldly things, the more he enjoys them.

10. He is the most temperate of all Men, yet fares most deliciously: he lends and gives most freely, yet he is the greatest Usurer: he is meek towards all Men, yet inexorable by Men. He is the best Child, Husband, Brother, Friend; yet hates Father and Mother, Brother and Sister. He loves all Men as himself; yet hates some Men with a perfect Hatred.

11. He desires to have more Grace than any Man has in the World; yet is truly sorrowful when he sees any Man have less than himself. He knows no Man after the Flesh; yet gives all Men their due Respects. He knows, if he please Man he cannot be the Servant of Christ; yet, for Christ's sake, he pleases all Men in all things. He is a Peace-maker; yet is a continual Fighter, and an irreconcilable Enemy.

12. He believes him to be worse than an Infidel, that provides not for his Family; yet himself lives and dies without Care. He reverences all his Superiors; yet stands stiffly upon Authority. He is severe to his Children, because he loves them; and by being favourable to his Enemies, he revenges himself upon them.

13. He believes the Angels to be more excellent Creatures than himself; yet counts them his Servants. He believes that he receives many good things by their Means; and yet he neither prays for their Assistance, nor offers them Thanks; which he does not disdain to the meanest Christian.

14. He believes himself a King, how mean soever he be: and how great soever he is, yet he thinks himself not too good to serve the poorest Saint.

15. He is often in Prison, yet always at Liberty: a Freeman, tho' a Servant. He loves not Honour amongst Men; yet highly prizes a good Name.

16. He

16. He believes that God has bid every Man who does him Good, to do it ; yet of any Man he is the most thankful to those that do for him. He would lay down his Life to save the Soul of his Enemy ; yet will not venture upon one Sin to save the Life of him, who saved his.

17. He swears to his own Hinderance, and changes not ; yet knows that his Oath cannot tie him to Sin.

18. He believes Christ to have no need of any thing he does ; yet he reckons he relieves Christ in all his Acts of Charity. He knows he can do nothing of himself ; yet he labours to work out his own Salvation. He professes he can do nothing ; yet as truly professes he can do all things. He knows that Flesh and Blood cannot inherit the Kingdom of God ; yet believes he shall go to Heaven both Body and Soul.

19. He trembles at God's Word, yet counts it sweeter to him than Honey, and the Honey-Comb ; and dearer than thousands of Gold and Silver.

20. He believes that God will never damn him ; and yet fears God for being able to cast him into Hell. He knows he shall not be saved by, nor for his good Works ; yet does all the good Works he can.

21. He knows God's Providence is in all things ; yet is so diligent in his Calling and Business, as if he were to work out his own Happiness. He believes before-hand that God has purposed what he shall be, and that nothing can make him alter his Purpose ; yet prays and endeavours, as if he would force God to save him for ever.

22. He prays and labours for what he is confident God means to give ; and the more assured he is, the more earnest he prays for what he knows he shall never obtain ; and yet gives not over. He prays and labours for what he knows he shall be no less happy without. He prays with all his Heart not to be led into Temptation ; yet rejoices when he is fallen into it. He believes his Prayers are heard, even when they are denied ; and gives Thanks for that which he prays against.

23. He has within him both Flesh and Spirit ; and yet is not a double-minded Man. He is often led Captive by the Law of Sin ; yet it never gets dominion over him. He cannot sin ; yet can do nothing without Sin. He does nothing against his Will ; yet maintains he does what he would not. He wavers and doubts ; yet still obtains.

24. He is often tossed and shaken, yet is as Mount *Sion*. He is a Serpent and a Dove ; a Lamb and a Lion ; a Reed and a Cedar. He is sometimes so troubled, that he thinks nothing true in Religion ; yet if he did think so, he could not be troubled at all. He sometimes thinks that God has no Mercy for him ; yet resolves to die in the Pursuit of it. He believes, like *Abraham*, against Hope ; and tho he cannot answer God's Logic, yet with the Woman of *Canaan*, he hopes to prevail with the Rhetoric of Importunity.

25. He wrestles, and yet prevails ; and tho yielding himself unworthy of the least Blessing he enjoys, yet *Jacob* like, he will not let go without a new Blessing. He sometimes thinks himself to have no Grace at all ; and yet

yet how poor and afflicted soever he is besides, he would not change Conditions with the most prosperous Man under Heaven, that is a manifest Worldling.

26. He sometimes thinks that the Ordinances of God do him no good; yet he would rather part with his Life than be deprived of them.

27. He was born dead; yet so that it had been Murder for any one to have taken his Life away: and after he began to live, he was ever dying.

28. And tho he has an eternal Life begun in him, yet he accounts he has a Death to pass through.

29. He counts Self-murder a heinous Sin; yet is ever busied in crucifying the Flesh, and in putting to Death his earthly Members; not doubting but there will come a Time of Glory, when he shall be esteemed precious in the Sight of the Great God of Heaven and Earth, appearing with Boldness at his Throne, and asking any thing he needs; being endued with Humility, by acknowledging his great Crimes and Offences; and owning that he deserves nothing but severe Punishment.

30. He believes that his Soul and Body shall be as full of Glory, as theirs that have more; and no fuller than theirs that have less.

31. He lives invisible to those that see him; and those that know him best, do but guess at him; yet those many times judge more truly of him than he does of himself.

32. The World will sometimes account him a Saint, when God accounts him a Hypocrite; and afterwards, when the World brands him for a Hypocrite, God owns him for a Saint.

33. His Death makes not an End of him. His Soul, which was put into his Body, is not to be perfected without his Body; yet his Soul is more happy, when it is separated from his Body, than when it was joined to it: and his Body, tho torn in Pieces, burnt to Ashes, ground to Powder, or turn'd to Rottenness, shall be no Loser.

34. His Advocate, his Surety shall be his Judge; his mortal Part shall become immortal; and what was sown in Corruption and Defilement, shall be raised in Incorruption and Glory; and a finite Creature shall possess an infinite Happiness.)



SUPPLEMENT XVII.
AN
ATTEMPT
To PROMOTE the
P E A C E
OF THE
CHURCH.*

* See de Augment. Scientiar. pag. 265.

VOL. II.

Pp

PRE

P R E F A C E.

THE following Attempt consists of two Pieces, wrote at different Times; but both of them having the same Scope, and tending to allay the Fury of religious Controversies, and edify the Church of England. The first was wrote in the Reign of Queen Elizabeth; and the second was, many Years afterwards, dedicated to King James: but for their Agreement, they are here joined together, as two Sections of the same Work; to supply, as they do in great Measure, the Deficiency of a Discourse upon the Degrees of Unity in the City of God, pointed out as wanting, under the Doctrine of inspired Theology, in the *de Augmentis Scientiarum* *.

The first of these Pieces is directed to the contending Parties; and moderates calmly betwixt the Church of England, and the budding Sectaries; yet so as to open the Ulcers on both Sides; the better to dispose them for healing. And thus it may not be unseasonable, even at this Day; tho, by Length of Time, one might hope the Malignity is discharged; and the old Leaven consumed.

The second is of a higher Nature; and directed to those who had the Power of regulating both the Civil and Ecclesiastical Affairs of the Kingdom: so that the two may be looked upon as Counterparts to each other; and both together as a very promising Means of effecting a happy Reconciliation, and promoting the Peace and Tranquillity of the Church of England.

* Pag. 265.

A N
A T T E M P T
To PROMOTE the
PEACE of the CHURCH.

S E C T. I.

Of the CONTROVERSIES *of the* CHURCH *of*
E N G L A N D.

1. **I**T is but Ignorance to expect, that the State of Religion should not, especially in the Times of Peace, be exercised with Controversies: for it is the Condition of the Church militant, to be ever under Trials. Thus when the fiery Trial of Persecution ceases, there succeeds another; which, by contrary Blasts of Doctrine, sifts and winnows Mens Faith; and proves whether they know God aright: as the Trial of Afflictions discovers whether they love him better than they do the World. Accordingly, it was foretold by Christ himself, *That in the latter Times it should be said, lo here, lo there is Christ*: which is to be understood, not as if the very Person of Christ should be assumed and counterfeited; but that his Authority and Preheminence should be challenged and pretended. Thus we have seen that Saying fulfilled, *Ecce in Deserto; ecce in Penetratibus*: while some have sought the Truth in the Conventicles of Hereticks and Sectaries; others in the external Face and Representation of the Church; and both have been seduced.

2. If, therefore, the Controversies of the Church of England were not only such as unswathe her Bands, the Bands of Peace; but even such as divided the Unity of the Spirit; yet there would be no Occasion for Catholics dangerous.

tholicks to judge, nor for irreligious Persons to despise us. But our Contentions need not so much that general Canon of Christ, pronounced against Hereticks; *Ye err, not knowing the Scriptures, nor the Power of God*; as the Admonition of St. James; *Let every Man be swift to hear, slow to speak, slow to Wrath*: for the Wound is no way dangerous, if we do not poison it with our Remedies. And as others have no reason to make themselves Musick in our Discord; so I hope that nothing will displease ourselves, which shall be candidly and modestly propos'd for the appeasing of these Dissentions. For he who is offended at this Voice; *Ye are Brethren, why strive ye?* will give a great Presumption, that he is the Person who wrongs his Brethren.

Require
Rest rather
than Remedy.

3. I will not enter into the Controversies themselves; as judging that the Disease requires Rest rather than any other Cure. We all know and confess they are not of the highest Nature; for they do not concern the sublime Mysteries of Faith, such as detain'd the Churches for many Years after their first Peace, when the Hereticks moved curious Questions, and made strange Anatomies of the Natures and Person of Christ; and when the Catholick Fathers were compelled to follow them with all the Subtlety of Decisions and Determinations, to exclude them from their Evasions, and to take them in their Labyrinths; whence it was truly said, *that in those Days, it was an ingenious and subtle thing to be a Christian*.

Concern not
the great
Parts of Wor-
ship.

4. Neither are they concerning the great Parts of the Worship of God; (for it is justly said, there will be no Unity of Belief, without an Unity of Worship) such as the Controversies of the Eastern and Western Churches about Images; and many of those between the Church of Rome and us, about the Adoration of the Sacrament, and the like; but we contend about Ceremonies and Things indifferent; or about the external Policy and Government of the Church. And if we would but remember that the ancient and true Bonds of Unity, are one Faith, one Baptism; and not one Ceremony, or one Policy; if we would observe that League of Christians made by our Saviour, *he that is not against us, is with us*; if we could but comprehend that Saying, *the Diversities of Ceremonies shew the Unity of the Doctrine*; and that Religion has Parts which relate to Eternity, and others which relate to Time; and if we did but know the Virtue of Silence, and Slowness to speak, recommended by St. James; our Controversies would of themselves soon close, and grow together: especially, if we forsook the turbulent Temper of these Times, and revived the Proceedings of the Apostles, and primitive Fathers of the Church, (which in the like and greater Cases never entered into Assertions and Positions, but deliver'd Counsels and Advices;) we should need no other Remedy. Brother, if that which you give as an Assertion, you would deliver by way of Advice; Reverence would be due to your Counsel: but Faith is not due to your Assertion. St. Paul was content to speak thus, *I, and not the Lord: and according to my Counsel*: but now Men too lightly say; not I, but the Lord; and bind it with a heavy Denunciation of his Judgments, to terrify

the simple, who have not sufficiently understood out of Solomon, that the causeless Curse shall not come.

5. Therefore, as the Accidents are what breed the Danger, and not the Things themselves, in their own Nature; it is proper the Remedies should be applied, after opening that on either side, which keeps the Wound fresh; and works an Indisposition in Mens Minds to a Re-union. And certainly Peace is the best built upon a Recollection of the Wrongs sustained. The Speeches made, by the wisest Men, for Concord and Harmony, have call'd to remembrance the Extremities used on both sides. And, indeed, he who speaks Peace, without repeating the Conditions of the Quarrel; rather sweetens Mens Minds with fallacious Hopes of Peace, than equitably composes the Difference ^a.

6. And first, it is time that an end were made of that immodest and deformed manner of Writing, lately practised; wherein Matters of Religion are handled in the Style of the Stage. Indeed, bitter and earnest Writing must not be hastily condemned; for Men cannot contend coldly about things they hold dear and precious. A politic Man may herein write, without much Sense or Feeling of what he says; as in a Speculation that regards him not: but a feeling Christian will express in his Words a Character either of Zeal or Love. The latter whereof I could wish rather embraced; as being more proper for these Times: yet own the former is warranted by great Examples. But to put off all reverent and religious Compassion towards Evils, or Indignation towards Faults; and turn Religion into a Comedy or a Satyr; to search and rip up Wounds with a laughing Countenance; to intermix Scripture and Scurrility sometimes in a Breath: this is far from the Behaviour of a Christian, and scarce becoming an honest and sober Man. There is no greater Confusion, than the confounding of Jest and Earnest ^b. The Majesty of Religion, and the Contempt and Deformity of Things ridiculous, are direct Opposites. There are two principal Causes of Atheism; viz. vain Controversies, and prophane Scoffing: and if these two are join'd, no doubt but they will make a great Progress ^c.

7. Job, in his own Person, speaking of the Majesty and Gravity of a Judge, says, *If I smiled, they believed it not*: that is, if I glanced upon Mirth, yet Mens Minds were so possessed with a Reverence of the Action in hand, that they could not receive it. Much less ought this mirthful Disposition to reign among Bishops and Divines, when they dispute about holy Things ^d. And therefore, tho some think it Policy to encounter the Scoffer with his own Weapon, as when Cardinal Sansovino advised Julius the Second to encounter the Council of Pisa with the Council of Lateran; or as Mr. Jewel made a Challenge to confute the Catholicks from

^a Qui Pacem tractat non repetitis Conditionibus Dissidij, is magis animos hominum dulcedine pacis fallit, quam aequitate componit.

^b Non est major Confusio quam Serij & Joci.

^c See the Author's Essay on Atheism, pag. 94. of this Volume. See also the Lord Shaftesbury's Characteristicks.

^d An affected and ill-matched kind of Pleasantry was found in many Divines of that Age; when even the Pulpit became theatrical; and some of the Preachers were Pundlers.

from the Fathers ; yet this will not excuse the Imitation of Evil in another. It should be otherwise with us ; or as *Cæsar* said, *Let them all as they do ; and me like myself^e* : But now, while we differ about good things, we agree in such as are evil^t.

The Blame,
where justly
laid.

8. If I were asked on which side lay the Blame ? I should remember the Proverb, *that the second Blow makes the Fray* ; and the Saying of an obscure Person ; *he who replies, multiplies 8.* and should determine the Question with this ; *the one begun, but the other will bear of no end^b*.

A Declaration
required
of the Clergy.

9. And indeed I wonder, that some of those Preachers, who call out for Reformation, do not publish a Declaration, to satisfy the World that they dislike their Cause should be thus solicited : for I hope assuredly that my Lords of the Clergy, have no Intelligence with this interlibelling ; but altogether disallow that their Credit should be thus defended.

Two kinds of
Pamphlets.

10. And surely, there is not an indifferent Hand carried towards Pamphlets ; for one sort flies in the Dark ; and the other is uttered openly : where I might observe out of a wise Writer, that *to punish Men of Genius, spreads their Authorityⁱ*. And indeed we see it always happens, that the forbidden Writings are deemed certain Sparks of Truth, which fly in the Faces of those that would stifle and tread them out : whereas an authorized Book is thought to be but the *Language of the Times*. And in plain truth, I find these open Pamphlets no less proper to be suppressed than the other : because, as the former deface the Government of the Church, in the Persons of the Bishops and Prelates ; so the latter expose the Exercises of Religion to Contempt, in the Persons of certain Preachers ; and disgrace a higher Matter, tho in the meaner Person.

Violent Oppo-
sition to Epis-
copacy.

11. Besides ; I find certain indiscreet and dangerous Positions, as if the civil Government had almost lost the Force of its Sinews, and were ready to fall into a Convulsion ; all things being full of Faction and Disorder : which is as unjustly acknowledged, as falsely affirmed. I know the Meaning is to enforce the irreverent and violent opposing of the Government of Bishops, as a suspected Fore-runner of a more general Contempt. And I grant there is a Sympathy between the States ; but no such Matter in the civil Policy, as deserves so dishonourable a Reflection.

The Cure of
these Distur-
bances.

12. To conclude this Point, it were to be wished that such Writings had never seen the Sun. The next thing is, since they are common abroad, that they be censured by all who have Understanding and Conscience ; as the intemperate Extravagancies of some light Persons. And farther, let Men beware, unless they mean to risque depriving themselves of Religion, and to pave their own Hearts, as the High-way ; how they are conversant in them ; and much more how they delight in that Vein : But let them rather turn their laughing into blushing ; and be ashamed, as of a short Madness, that they have taken their Sport and Solace in Matters of Religion.

This

^a Nil malo quam eos similes esse sui, & me mei.

^t Dum de Bonis contendimus, de Malis consensimus.

^b Qui replicas multiplicat.

ⁱ Alter principium malo dedit, alter modum abstulit.

¹ Punis Ingeniis, gliscit Authoritas.

This perhaps is a Fault that will be soon acknowledged; tho I perceive there are some who endeavour to blanch and excuse it.

13. But to descend to a true View and Consideration of the Accidents *Five Particu-* and Circumstances of these *Controversies*, wherein both sides deserve Blame *lars blame-* or Imputation; I find generally, that Men in Church Matters offend in *able in rela-* some or all of these five Points. *tion to Church*
Matters.

- (1.) The giving Occasion to Controversies; and the inconsiderate and ungrounded taking of Occasion.
- (2.) The extending and multiplying of Controversies, to a more general Opposition than appears at the first, when Mens Judgments are least partial.
- (3.) The passionate and unbrotherly Practices and Proceedings of both sides, towards the Persons of each other; to their Discredit and Suppression.
- (4.) The Courses taken on either side, for the drawing their Partizans to a more strict Union within themselves; which always imports a farther Distraction of the entire Body.
- (5.) And lastly, the improper and inconvenient proposing, publishing and debating of these Controversies.

I.

14. As to the *Occasions of Controversies*; it cannot be denied, that the *The Occasion* Imperfections in the Conversation and Government of those who hold chief *of Church* Place in the Church, have ever been the principal Causes and Motives of *Controversies.* Schisms and Divisions. For while the Bishops and Governors of the Church continue full of Knowledge and good Works; whilst they truly feed the Flock; whilst they deal with secular States, in all Liberty and Resolution, according to the Majesty of their Calling, and the Care of Souls imposed upon them; so long the Church is situated as upon a Hill: no Man makes question of it, or seeks to depart from it. But when these Virtues in the Fathers and Leaders of the Church, are eclipsed; and they grow worldly Lovers of themselves, and Pleasers of Men; then Men begin to grope for the Church as in the Dark; they question whether these are the Successors of the Apostles, or of the *Pharisees*: yea, tho they sit in *Moses's Chair*, yet they can never speak as *having Authority*; because *they have lost their Reputation in the Consciences of Men, by declining from the Way they trace out to others.* Whence Men had need continually have sounding in their Ears, *go not out*; so ready are they to depart from the Church upon every Voice. And therefore it is justly observed by one who writes as a natural Man, *that the Hypocrisy of Friars did, for a long time, support and bear out the Irreligion of Bishops and Prelates*^k.

15. For this is the double Policy of the spiritual Enemy, either by *The Calumni-* counterfeit Holiness of Life to establish and authorize Errors; or by *ating of Bi-* Corruption of Manners to discredit Truth, and the things that are lawful. *shops.*

^k See Vol. I. p. 21.

This concerns my Lords the Bishops, to whom I am Witness to myself, that I stand affected as I ought. No Contradiction has supplanted in me the Reverence I owe to their Calling; neither has any Detraction or Calumny debased my Opinion of their Persons. I know some of them, whose Names are most pierced with these Accusations, to be Men of great Virtues; altho the Indisposition of the Times, and the Want of Correspondence many ways, is enough to frustrate the best Endeavours to edify the Church. And for the rest, generally, I condemn none. I am no Judge of them that belong to so high a Master: neither have I two Witnesses. And I know it is justly said of Fame, *that she relates Things false as well as true*¹. Their Accusations rise not all from one Quarter: they have many and different Enemies, ready at hand to invent Slander; more are ready to amplify it, and the most are ready to believe it. And Credulity is the Attractive of Lies^m. But if there are any against whom the supreme Bishop has not a few, but many things; if any one has lost his first Love; if any be neither hot nor cold; if any one has stumbled too fondly at the Threshold, so that he cannot sit well, because he entered ill; it is time they return from whence they are fallen, and confirm the things that remain. Great is the Weight of this Fault; and for their Cause Men did abhor the Worship of God. But however it is, those who have sought to defame them, and cast Contempt upon them, are not to be excused. It is the Precept of Solomon, *that the Rulers be not reproached; no, not in Thought*: but that we draw our very Notions into a modest Interpretation of their Actions. The holy Angel would give no Sentence of Blasphemy against the common Slanderer; but said, *the Lord rebuke thee*. St. Paul, tho against him who polluted sacred Justice with tyrannical Violence, he justly denounced the Judgment of God, saying, *the Lord will strike thee*; yet in saying, *thou whited Wall*, he thought he had gone too far, and retracted it: whereupon a learned Father said, *He dreaded even the empty Name, and Shadow of a Priest*ⁿ.

The Regard
paid them by
the ancient
Councils and
Synods.

16. The ancient Councils and Synods, as we find in ecclesiastical History, when they deprived a Bishop, never recorded his Offence; but buried it in perpetual Silence. Cham purchased his Curse, by revealing his Father's Disgrace. And it is a much greater Fault to ascend from their Person to their Calling; and draw that in question. Many good Fathers speak with rigour and severity of the Unworthiness of Bishops; as if it directly forfeited and ceased their Office. One says, *we are call'd Priests, but Priests we are not*^o. And another says, *unless you undertake the good Work, you cannot be a Bishop*^p: yet they meant nothing less than to raise any Doubt of their Calling or Ordination.

The second
Occasion of
Church Con-
troversies.

17. The second Occasion of Church Controversies is the Nature and Humour of some Men. The Church never wants a kind of Persons, who love the Salutation of Rabbi, Master; not in Ceremony or Complement, but

¹ Pariter facta, atque infecta canebat.

^m Magnes Mendacij Credulitas.

ⁿ Ipsum quamvis inane nomen, & umbram Sacerdotis expavit.

^o Sacerdotes nominamur, & non sumus.

^p Nisi bonum opus amplectaris, Episcopus esse non potes.

but from an inward Authority which they affect over Mens Minds, in drawing them to depend upon their Opinions, and to *seek Knowledge at their Lips*. These Men are the true Successors of *Diotrephes*, the Lover of Pre-heminence, and not Lord Bishops. These also have their Adherents, *whose Glory is Obedience*¹; stiff Followers, and such as have a wonderful Zeal for those they have once chosen to be their Masters. This latter sort are generally young Men, of superficial Understanding, and carried away with partial Respects of Persons, or with the enticing Appearance of godly Names and Pretence: *few follow Things themselves, more follow the Names of Things, and most the Names of their Masters*².

18. About these general Affections are wreathed and interlaced accidental and private Emulations and Discontents; all which together break forth into Contentions; such as either violate Truth, Sobriety, or Peace. These Generalities apply themselves. The *Universities* are the Seat or Continent of this Disease; whence it has been, and is derived into the rest of the Kingdom. There Men will no longer be *of the Number*. There do some side themselves, before they know their right Hand from their left: so true it is *that they skip from Ignorance to Prejudice*³; and never take a sound Judgment in their Way. But as it is well observed, *betwixt the Judgment of Youth, and the Prejudice of old Age; all Truth is corrupted*⁴. When Men are indifferent, and not partial, their Judgment is weak and unripe, thro Want of Years; and when it grows to Strength and Ripeness, by that time it is forestalled with such a Number of prejudiced Opinions, that it becomes unprofitable.

Emulation and Parry nourished by the Universities.

19. In the mean time, the honourable Names of *Sincerity, Reformation, The Abuse of* and *Discipline*, are set foremost; so that Contentions and furious Zeal cannot be touched, but these *holy Things* are first thought to be violated. But however Sollicitation for the Peace of the Church may be censured to proceed from *carnal Sense*; I will conclude with the Apostle; *While there is Zeal and Contention amongst you, are ye not carnal?* And however the compounding of Controversies may be thought to favour of Man's Wisdom, and human Policy; and however others may think themselves led by *the Wisdom which is from above*; yet I say with St. James, *This Wisdom descends not from above; but is earthly, sensual, devilish: for where Envy and Strife is, there is Inconstancy, and every evil Work*⁵. Of this Inconstancy it is well said by a learned Father; *they endeavour to go forward still, not to Perfection, but to Change*⁶.

A third Occasion of Church Controversies, an extreme flying from Heresy or Corruption.

20. The *third Occasion of Controversies I observe to be, an extreme and unlimited Detestation of some former Heresy, or Corruption of the Church, already acknowledged and convicted.*

¹ Quorum Gloria in Obsequio.

² Pauci res ipsas sequuntur, plures nomina rerum, plurimi nomina Magistrorum.

³ Transcunt ab Ignorantia ad Prajudicium.

⁴ Inter juvenile Judicium, & senile Prajudicium, omnis Veritas corrumpitur.

⁵ Non est ista sapientia de sursum descendens, sed terrena, animalis, diabolica: Ubi enim Zelus & Contentio, ibi Inconstantia & omne Opus parvum.

⁶ Procedere volunt, non ad Perfectionem, sed ad Permutationem.

Thus the Cause of the *Arian* Heresy was particularly grounded upon a Detestation of Gentilism; lest the Christians should seem, by the Assertion of the equal Divinity of *Christ*, to approach to the Acknowledgment of more Gods than one. The Detestation of the Heresy of *Arius* produced that of *Sabellius*; who holding for execrable the Dissimilitude which *Arius* pretended in the Trinity, fled so far from him as to fall upon that other Extremity, of denying the Distinction of Persons; and to say they were only Names of several Offices and Dispensations. And most of the Heresies and Schisms of the Church have sprung from this Root: while Men have made it, as it were their Rule, to measure the most perfect Religion, by taking it farthest from the Error last condemned. *These are Heresies which rise out of the dead Ashes of others*. And this way of judging, in some Degree possesses many at present. They think it the true Touch-stone of Good and Evil, to measure every thing as it is more or less opposite to the Institutions of the Church of *Rome*; be it Matter of Ceremony, Policy, or other Institutions of greater Weight; deeming that ever most perfect which is farthest removed from her; and that ever polluted and blemished, which participates in any Appearance with her.

The Danger of this Error.

21. This is a subtle and dangerous Notion for Men to entertain; being apt to delude the Espousers; more apt to delude the People; and aptest to make us calumniate our Adversaries. This Notion might almost bring us to the re-baptization of Children, baptized according to that Religion: For the re-ordaining of Priests, is a Matter already resolutely maintained. Let Men therefore beware how they are abused by this Opinion; and know that it is a Matter of much greater Wisdom and Sobriety, to be well advised, whether in the general Demolition of the Institutions of the Church of *Rome*, there were not (as Mens Actions are imperfect) some Good purged away with the Bad; rather than to purge the Church, as they pretend, every Day anew: which is the way to make a desperate Wound in her Bowels; as is already begun.

A fourth Occasion, the Imitation of foreign Churches.

22. The fourth Occasion of these Controversies, and which also troubled the Church in former times, is a partial Affectation and Imitation of the foreign Churches. For many of our People, especially during the time of Persecution, having been conversant in Churches abroad; and received great Impression of the Form of Government there ordained, have violently endeavoured to intrude the same upon our Church. But I answer, let us agree in this, *that every Church do what is convenient for its own State*; if we do not agree in particular Customs. And tho their Churches had received the better Form; yet we are often to seek, not that which is best, but that good Thing which is readiest to be had. Our Church is not now to plant; being already settled and established. Perhaps in civil States, a Republic is more political than Monarchy: yet God forbid that all lawful Kingdoms should be bound to innovate, and make Alterations.

^x *Posthumi Haresum filij.*

^y *Consentiamus in eo quod convenit; non in eo quod receptum est.*

^z *Non quod optimum, sed e Bonis quid proximum.*

He who brings in evil Customs, resists the Will of God revealed in his Word : he who brings in new Things resists the Will of God revealed in things themselves^a.

Take Counsel of the Providence of God, as well as of his Word^b. Neither do I admit that their Form, tho it were possible and convenient, is better than ours; if some Abuses were taken away. The Parity and Equality of Ministers is a thing of great Confusion; so is an ordinary Government by Synods, which necessarily ensues upon the other.

23. It is hard in all Cases, but especially in Religion, when Voices shall be numbered, and not weighed. These were the Words of a wise Father; *To say the Truth, I am utterly determined never to come to any Council of Bishops; for I never yet saw a good End of any Council: for their Councils do not abate, but rather increase the Mischief^c.* Which is to be understood not so much of general Councils, as Synods, met for the ordinary Government of the Church. As for the Deprivation of Bishops, and the like Causes; this Mischief has taught the Use of *Archbishops, Patriarchs, and Primates*; as the Abuse of them since has taught Men to dislike them.

Inconveniences in the foreign Churches.

24. But it will be said, regard the Fruits of the Churches abroad, and ours. To which I say, that I beseech the Lord to multiply his Graces and Blessings upon those Churches an hundred fold: Yet it is not good to fall upon numbering of them. Perhaps our Peace has made us more wanton: perhaps also (tho I would be loth to derogate from the Honour of those Churches, were it not to remove Scandal) their Fruits are as Torches in the dark; which appear greatest afar off. I know they may have some strict Orders, for the repressing of various Excesses. But when I consider the Censures of certain Persons, passed as well upon particular Men, as upon Churches, I think of the Saying of a Platonist; *Certainly the Vices of the irascible Part of the Soul, are more heinous than those of the concupiscible, altho more secret^d:* a Matter that appear'd flagrant by the ancient Contentions of Bishops. And thus much for the Occasions of these Controversies.

The Fruits of the foreign Churches.

II.

25. We now proceed to the Growth and Progress of the Controversies; whereby the Saying of Solomon will be verified; *That the Course of Contention is to be stopped at the first; being otherwise as the Waters; which if they gain a Breach, it will scarce ever be recovered.*

The Growth and Progress of Controversies.

26. The Side that calls for Reformation expresses, (1.) some Dislike of certain Ceremonies, supposed to be superstitious. (2.) They complain of dumb Ministers, who possess rich Benefices. (3.) They inveigh against the

The Progress of the Side for Reformation.

^a Qui mala introducit, voluntatem Dei oppugnat revelatam in Verbo; qui nova introducit, voluntatem Dei oppugnat revelatam in Rebus.

^b Consule Providentiam Dei, cum Verbo Dei.

^c Equidem, ut vere quod res est scribam, prorsus decevi sugere omnem Convantum Episcoporum: nullius enim Concilij bonum exitum unquam vidi: Concilia enim non minuunt mala, sed augent potius.

^d Certe vitia irascibilis partis anima sunt gradu praviora, quam concupiscibilis, tamen occultiora.

idle and *monastical Continuance of such Ministers in the Universities*, as have Livings to reside upon; and the like Abuses. (4.) Then they go on to condemn the *Government of Bishops*; as an Hierarchy, remaining to us of the Corruptions of the Church of Rome. (5.) They except to several *Institutions in the Church*; as not sufficiently freed from the Pollutions of former Times. (6.) And lastly, they define of an *only and perpetual Form of Policy* in the Church; which, without Consideration of Possibility, and Foresight of Danger, and Perturbation of the Church and State, must be created and planted by the Magistrates. Here they stop. Others not able to keep footing on such steep Ground, descend farther; and pretend the same must be entered into, and accepted by the People, at their Peril; without attending the Establishment of Authority. And in the mean time they refuse to communicate with us; reputing us to have no Church. This has been the Progress of the one Side: I mean of the Generality. For I know, some were at the highest Strain at first.

*Of those on
the Side
of the Estab-
lishment.*

27. Neither has the Side which maintains the present Government of the Church, kept one Tenour. For (1.) the Ceremonies pretended to be corrupt, they maintain'd to be things indifferent; and oppos'd the Examples of the good Times of the Church, to the Challenge made them; because they were used in the later Times of Superstition. (2.) They were also content mildly to acknowledge many Imperfections in the Church; as Tares coming up among the Corn; which yet, according to the Wisdom of our Saviour, were not contentiously to be pulled up; lest it might spoil and supplant the good Corn: but they were to grow on together till the Harvest. (3.) They afterwards proceeded to a more absolute Defence of all the *Orders of the Church*; and stiffly maintained, that nothing was to be innovated; partly, because there was no Occasion; partly, because it would make a Breach upon the rest. (4.) Hence, exasperated thro Contention, they are fallen to a direct Condemnation of the contrary Party, as of a *Sett*. And, (5.) some indiscreet Persons have been bold, in open Preaching, to use dishonourable and derogatory Speech and Censure of the Churches abroad; inasmuch, that some of our Men, ordain'd in foreign Parts, have been pronounced *unlawful Ministers*.

*Each Party
greatly differs
from itself.*

28. Thus, we see, the Beginnings were modest; but the Extremes are violent: so that each Side now differs almost as much from itself, as at first the one did from the other. And tho my Meaning is not to enter into the Controversies themselves; yet I admonish the Maintainers of the above-mentioned Discipline, to weigh and consider seriously and attentively, how near they are to them, with whom they will not join. 'Tis very hard to affirm, that the *Discipline*, which they say we want, is one of the essential Parts of the Worship of God; and not to affirm withal, that the People, upon the Peril of Salvation, without staying for the Magistrate, are to gather themselves into it. I demand, if a civil State should receive the *Preaching of the Word*, and *Baptism*; and interdict and exclude the *Sacrament of the Lord's Supper*; were not Men bound, upon Danger of their Souls, to collect to Congregations; wherein they might celebrate this

*The Error of
the Separat-
ists.*

Mystery;

Sect. I. *the PEACE of the CHURCH.*

301

Mystery ; and not content themselves with that Part of God's Worship which the Magistrate had authorized ? This I speak, not to draw them into a Dislike of others ; but into a more deep Consideration of themselves : *Perhaps they do not return for want of knowing to what length they have run^e.*

29. Again, to my Lords the Bishops I say, that it is hard for them to *The Stiffness* avoid Blame, in the Opinion of an indifferent Judge, for standing so pre- *of the Bishops.* cisely upon altering nothing : *Laws unrefreshed with new ones, grow sour^f.* And without changing what is bad, the Good cannot be continued^g. To take away many Abuses supplants not good Orders ; but establishes them. *A contentious Retaining of Custom, is as turbulent a thing, as Innovation^h.* A good Husbandman is ever pruning his Vineyard, or his Field ; not unreasonably indeed, nor unskilfully, but lightly : he ever finds somewhat to do. We hear of no Offers made by the Bishops of *Bills in Parliament* ; which, no doubt, proceeding from them to whom it properly belongs, would have every where met with Acceptance. Their own Constitutions and Orders have reformed them little. Is nothing amiss ? Can any Man defend the Use of *Excommunication*, as a base Process, to lacky up and down for Duties and Fees ; it being a precursory Judgment of the latter Day ? Is there no means of training and nursing up Ministers, (for the Yield of the Universities will not serve, tho they were ever so well governed ;) to train them, I say, not to preach (for that every Man confidently adventures to do) but to preach sound Doctrine ; and to handle the *Scriptures* with Wisdom and Judgment ? I know Propheying was subject to great Abuse ; and would be more abused at present ; because the Heat of Contentions is increased : but, I say, the only Reason of the Abuse was, because there was a popular Audience admitted to it ; and because it was not contained within a private Conference of Ministers. Other things might be mentioned. I pray God to inspire the Bishops with a fervent Love and Care of the People ; and that they may not so much urge Things in Controversy, as Things out of Controversy ; which all Men confess to be right and good. And thus much for the *second Point*.

III.

30. As to the *third Point*, that of *unbrotherly Proceeding* on either Side ; *Uncharitable* it is directly contrary to my Purpose to amplify Wrongs : it is sufficient *Procedura.* to note and number them ; which I do also, to move Compassion and Remorse on the offending Side ; and not to animate Challenges and Complaints on the other. And this Point chiefly regards the Side which has the greatest Power : for *Injuries proceed from those that have the upper handⁱ.*

31. The

^e Fortè non redeunt, quia suum progressum non intelligunt.

^f Leges, novis legibus non recreata, acescunt.

^g Qui mala non permutat, in bonis non perseverat.

^h Morosa moris retentio, res turbulenta est, aque ac novitas.

ⁱ Injuria potentiorum sunt.

Of the Party
in Power.

31. The Wrongs of those possessed of the Government of the Church, to the others, can hardly be dissembled or excused: they have charged them as if they had denied Tribute to *Cæsar*; and withdrawn from the civil Magistrate the Obedience they have ever yielded and taught. They have sorted and coupled them with the *Family of Love*; whose Heresies they have laboured to destroy and confute. They have been swift to receive Accusations against them, from those that have quarrelled with them, only for speaking against Sin and Vice. Their Accusations and Inquisitions have been strict, swearing Men to Blanks and Generalities; not included within the Compass of certain Matter, which the Party who takes the Oath may comprehend: And this is a captious and strained thing. Their urging of Subscription to their own Articles, is but *irritating and provoking the Diseases of the Church*^k; which otherwise would spend and discharge themselves. *He seeks not Unity, but Division, who exacts that in Words, which Men are content to yield in Action*^l. And there are some who, I am persuaded, will not easily offend by Non-conformity, yet make a Conscience to subscribe; as knowing this Mark of Inconstancy, and Defection from what they have long held, will disable them from doing that Good they might otherwise effect: for such is the Weakness of many, that they think their Ministry would be thereby discredited. As for their easy silencing them, in such a great Scarcity of Preachers; this is to punish the People, and not the Priests. Ought not the Bishops to keep one Eye open upon the Good those Men do; and not to fix them both upon the Evil only supposed to proceed from them? Indeed for such as are intemperate and incorrigible; God forbid they should be permitted to preach: but shall every inconsiderate Word, sometimes captiously watched, and for the most part harshly enforced, be a Forfeiture of their Voice and Gift in Preaching? As for particular Molestations; I take no Pleasure to recite them. If a Minister shall be troubled for saying in Baptism, *do you believe, for doest thou believe?* If another shall be called in question for praying for her Majesty, without the Additions of her Titles; whilst the very *Form of Prayer* in the Book of *Common-Prayer*, has, *thy Servant Elizabeth*, and no more. If a third shall be accused upon these Words, uttered with relation to our Controversies, *tollatur Lex, & fiat Certamen*^m: (whereby was meant, that the Prejudice of the Law removed, the Reasons on both Sides should be equally compared) as if it were calling the People to Sedition and Mutiny; or as if he had said, *away with the Law, and try it out by Force*. If these, and the like Particulars be true, which I have but by Rumour, and cannot affirm; it is to be lamented, that they should labour amongst us with so little Comfort. I know that restrained Governments are better than remiss ones; and I am of his Mind, who said, *'tis better to live where nothing is lawful, than where all things are lawful*. I dislike that Laws should be discontinued, or Dis-

^k *Lacessere & irritare morbos ecclesia.*

^l *Non consensum quarit sed dissidium, qui, quod factis prestat, in verbis exigit.*

^m Set aside the Law, and let Trial be made.

turbors go unpunished : but Laws are like the Grape, that when too much pressed, yields a harsh and unwholesome Wine. Of these things I must say ; *The Wrath of Man worketh not the Righteousness of God.*

32. As for the *Injuries* of the other Side ; they are but headless Arrows ; *Of the Party fiery and eager Invectives ; and, in some fond Men, uncivil and irreverent Behaviour towards their Superiors.* This last Invention also, which exposes them to Derision and Obloquy by Libels, charges not the whole Side : nor even that other, tho still more odious, practised by the worst sort of them ; which is to call in certain mercenary Troops, that oppose Bishops, and all other ecclesiastical Dignities, to the Spoil of their Endowments and Livings. Of these I cannot speak too severely. It is an Intelligence between Incendiaries and Robbers ; the one to fire the House, the other to rifle it.

IV.

33. The *fourth Point* wholly regards those who oppose the present ecclesiastical Government ; and who, altho they have not cut themselves off from the Body and Communion of the Church ; yet affect certain Cognizances and Differences, wherein they seek to correspond among themselves ; and to be separate from others. And it is truly said, that *there are as well schismatical Fashions, as Opinions*ⁿ. First, they have impropriated to themselves the Names of *zealous, sincere, and reformed* ; as if all others were cold Minglers of holy and prophane Things, and Friends to Abuses. Nay, let a Man be endued with great Virtues, and fruitful in good Works ; yet if he concur not with them, they term him, in Derogation, a *civil and moral Man* ; and compare him to *Socrates*, or some heathen Philosopher : whereas the Wisdom of the Scriptures teaches us, to judge and denominate Men religious, according to their Works of the *second Table* : because they of the *first* are often counterfeit, and practised in Hypocrisy^o. So *St. John* says, that a *Man vainly boasts of loving God, whom he has not seen, if he love not his Brother, whom he has seen.* And *St. James* says, *this is true Religion, to visit the fatherless and the Widow.* So that what is with them but philosophical and moral, is, in the Apostle's Phrase, *true Religion and Christianity.*

34. And as in Affection they challenge the Virtues of *Zeal, Sincerity, &c.* so in Knowledge, they attribute to themselves *Light and Perfection.* They say the Church of *England*, in *King Edward's* Time, and the Beginning of the *Queen's* Reign, was but in the Cradle ; and that the Bishops of those times did somewhat for Day-break ; but that Maturity and Fulness of *Light* proceeds from themselves. So *Sabinus*, Bishop of *Heraclea*, a *Macedonian* Heretick, said, that the Fathers in the Council of *Nice* were but Infants, and ignorant Men ; and that the Church was not so perfect in their Decrees, as to refuse the farther Ripeness of Knowledge, which Time had revealed. And as they censure virtuous Men,

The Procedure of the Separatists, or Opposers of Episcopal Government. Their Pretences to Zeal and Sincerity.

Their Pretences to Light and Perfection.

ⁿ Tam sunt Mores quidam Schismatici, quam Dogmata Schismatica.

^o See the Author's *Essays*, pag. 97, 98, of this Volume.

*Their Re-
proach of
Preachers.*

*Their own
Manner of
Preaching.*

Men, by the Names of *civil* and *moral*; so they censure Men truly religious, and wise, who see into the Vanity of their Affections, by the Name of *political* Persons; saying, *that their Wisdom is but carnal, and favouring of Man's Brain*. So likewise, if a Divine preach with Thought and Care, not in the vain scholastical Manner, but with Strength and Solidity; ordering the Matter he handles distinctly, for the sake of Memory; deducing it down in the Way of Direction; and authorizing it with strong Proofs and Warrants; they censure it as a Form of speaking, not becoming the Simplicity of the Gospel; and refer it to the Reprehension of St. Paul, speaking of the *enticing Speech of Man's Wisdom*. Now for their own manner of *Preaching*, what is it? Surely they exhort well, work Compunction of Mind, and bring Men to the Question, *Men and Brethren, what shall we do?* But that is not enough; except they resolve the Question. They handle Matters of Controversy weakly, and slightly; and as before an Audience that will accept of any thing. In their Doctrine of Manners there is little but Generality and Repetition. The Word, the Bread of Life, they toss up and down; but they break it not: they draw not their Directions down to *Cases of Conscience*; that a Man may be warranted in his particular Actions, whether they are lawful or not: neither indeed are many of them able to do it, thro the Want of grounded Knowledge; or thro the Want of Study and Application. 'Tis an easy thing to call out for the Observance of the Sabbath; or to speak against unlawful Gain: but what Actions and Works may be done upon the Sabbath, what not; and what Courses of Gain are lawful, and in what Cases; to set this down, and to clear the whole Matter, with good Distinctions and Decisions, is a Work of great Knowledge, and Labour; that requires much Meditation, conversing with the Scriptures, and other Helps, which God has provided and preserved for Instruction.

Their erroneous and imperfect Manner of teaching the People.

35. Again; they carry not an equal Hand in teaching the People their lawful Liberty, as well as their Restraints and Prohibitions: but think a Man cannot go too far in what has the Shew of a Commandment. They forget that there are Sins on the Right-hand, as well as on the Left; and that the Word is double edged, and cuts on both sides; as well the prophane Transgressions, as the superstitious Observances. Who doubts that it is as unlawful *to shut where God has opened, as to open where God has shut; to bind where God has loosed, as to loose where God has bound?* Among Men it is commonly as ill taken to refuse Favours, as to disobey Commands. In this kind of Zeal they have pronounced generally, and without Difference; as for Example, that all *Untruths are unlawful*; notwithstanding the Midwives are directly reported *to have been blessed for their Excuse*: as *Rahab* is said *by Faith to have concealed the Spies*. And Solomon's selected Judgment proceeded upon a Simulation: And our Saviour, the more to touch the Hearts of the two Disciples with a holy Dalliance, made as if he would have passed *Emmaus*. Farther, I have heard some *Sermons of Mortification*, which, I think, with very good Meaning, they have preached out of their own Experience and Exercise; and Things in private Coun-

fels

sels not improper ; but surely no sound Doctrines, only such as are rather apt to breed in Men weak Opinions and perplexed Despairs, than filial and true Repentance.

37. Another Point of great Inconvenience and Danger, is entitling the People to hear Controversies, and all kinds of Doctrine. They say, no part of the Counsel of God is to be suppressed ; nor the People defrauded : so that the Difference which the Apostle makes between *Milk* and *Strong Meat*, is confounded ; and his Precept, that *the Weak be not admitted to Questions and Controversies*, neglected.

Their Admission of the People to all Controversies.

38. But chiefly their Manner of handling the Scriptures is to be suspected, as a Seed of farther Inconvenience ; for whilst they endeavour to produce Scripture for every thing ; and have, in a manner, deprived themselves and the Church of a particular Help and Support, by debasing the Authority of the *Fathers* ; they have recourse to naked Examples, conceited Inferences, and forced Allusions ; such as ruin all Certainty of Religion.

Their Manner of handling the Scriptures.

39. Another Extremity, is the excessive magnifying of that, which tho' it be a principal and most holy Institution ; yet has its Limits ; as well as all other Things. We see that wherever, in a manner, they find the *Word*, spoken of in Scripture, they expound it of *Preaching* : they have made it almost essential to the Sacrament of the Lord's Supper, to have a Precedent Sermon ; and they have, in a sort, annihilated the Use of Liturgies, and divine Service ; altho' the House of God be denominated, in a particular manner, the *House of Prayer*, and not the *House of Preaching*.

Their extreme magnifying of Preaching.

40. As for the Life of the good Monks and Hermits in the *primitive Church* ; I know they will condemn a Man as half a Papist, who maintains them to be other than prophane : because such Hermits heard no Sermons. In the mean time, *what Preaching is*, and *who may be said to preach*, they do not enquire : but, as far as I see, every Man, who presumes to speak in the Chair, is by them accounted a *Preacher*. But I am assured, that many who call hotly for a *preaching Ministry*, deserve to be the first that should be expelled. All these Errors and Misconduct of theirs, they fortify and intrench by a *rivetted Respect to their own Opinions ; and an Impatience to bear Contradiction or Argument*. And I know some of them that would think it a Tempting of God, to hear or read what may be said against them ; as if Men could *bold fast to that which is good*, without trying all things first.

Their Stiffness and Fondness for their own Tenets.

41. This may suffice to offer them a Thought and Consideration, whether in these things they do well or no ; and to correct and assuage the Partiality of their Followers. But for any Man, who shall hereby enter into a Contempt of their Ministry ; it is but his own Hardness of Heart. I know the Work of Exhortation chiefly rests upon these Men ; and they have Zeal, and a hate of Sin. But again, let them beware it be not true which

A Consideration of their Ways laid before them.

It may perhaps require a competent Share of good Sense, to understand the Caution here inculcated, which is such as can scarce be felt by religious Zealots ; who thro' their Ignorance generally render themselves contemptible to the Men of Sense, and Learning.

one of their Adversaries said; viz. that they have only two *small Wants*, KNOWLEDGE and CHARITY. And so I conclude this Point.

V.

*The Way of
conducting re-
ligious Con-
troversies.*

42. The last Point, viz. the due *publishing and debating of these Controversies*, need not be enlarged upon. And the strange Abuse of *Antiques* and *Pasquils* has been touched before¹. Certainly the Character of *Love* is more proper for Debates of this nature, than that of *Zeal*. And as for all direct or indirect Glances upon Mens Persons; they were ever in these Cases disallowed.

*The People no
Judges of
Controversies.*

43. And whatever may be pretended, the People are no fit Arbitrators; but rather the quiet, the modest, and private Assemblies, and Conferences of the Learned. *He who speaks before an unqualified Hearer, does not dispute, but calumniate*². The Press and Pulpit should be free from these Contentions. Neither *Promotion* on the one side, nor *Glory* and *Heat* on the other, ought to continue such Challenges at the *Cross*, and other Places: but rather all Preachers, especially such as are of a good Temper, and have Wisdom with Conscience, ought to inculcate *Peace*, *Silence*, and a *Truce*. Neither let them fear *Solon's* Law, which in Factions compell'd every Person to range himself on the one side, or the other; nor yet the fond Calumny of *Neutrality*: but let them know, what a wise Man said is true; viz. *that Neuters in Contentions are either better, or worse, than either side.*

Conclusion.

44. These things I have wrote in all Sincerity and Simplicity, as to the Controversies which now disturb the Church of *England*; and that without all Art and Insinuation: and therefore am not likely to please either Party. Yet I hope that what I have said will find a Correspondence in those Minds which are not embarked in Partiality; but love the Whole better than a Part.

¹ See above, §. 6, 7.

² *Qui apud incapacem loquitur, non disceptat, sed calumniatur.*



S E C T. II.

Of the REGULATION of the CHURCH of
E N G L A N D. *

1. *E*cclesiastical Matters appertain not properly to my Profession ; but *The Design.* since a Man who stands a little removed from a Spot of Ground, may often survey it better than those who are upon it ; 'tis not impossible, but as a Spectator, I may have observed some things which the

* The following Section was by the Author dedicated to King James, under the Title of *Certain Considerations touching the better Pacification and Edification of the Church of England.* And since this Section is of a higher, or more political Nature, than the preceding, as recommending certain Alterations to be made in the Church ; it ought to be observed that the whole was humbly submitted to his Majesty and his Council, in the following manner. " The Unity of your Church, excellent Sovereign, is no less precious than the Union of your Kingdoms, they being both Works wherein your Happiness may contend with your Worthiness. Having therefore presumed, not without your Majesty's gracious Acceptance, to say somewhat of the one ^a, I am the more encouraged not to be silent on the other : and the rather because it is a Subject which I have considered heretofore ^b. But of all Things this animated me the most, that I found in these my Opinions, which I have long embraced (as may appear by what I have written many Years ago ^c) a Consent and Conformity with what your Majesty has published of your own most christian, wise, and moderate Sense in these Cases ; wherein your Majesty has shewn that you ever held the *Whole more dear than any Part.* For many give Opinion in these Matters, as if they desired not to purge the Evil from the Good, so much as to protect the Evil by the Good. Others act as if they would shew what is good, without examining what is possible ; which is wishing, and not proposing. And others again proceed as if they would rather remove than reform. But tho both sides, as Men, and excellent Men too, run into Extremes ; yet your Majesty is disposed to find the Golden Mean, and establish what is sound, and repair what is corrupt or decay'd.

" To your princely Judgment, therefore, I humbly submit whatever I propose ; offering the same but as a Mite into the Treasury of your Wisdom. For as the Astronomers well observe, that when three of the superior Lights meet in Conjunction, it produces some extraordinary Effects : So there being joined in your Majesty, the Light of Nature, the Light of Learning, and above all, the Light of God's Holy Spirit ; your Government must needs be as a happy Constellation over your Kingdoms.

" Neither is there wanting to your Majesty that fourth Light, which tho but a borrowed Light, is yet of singular Efficacy and Moment, added to the rest ; viz. the Light of a most wise and well compounded Council : to whose honourable and grave Wisdoms I likewise submit whatever I say ; hoping there is no Occasion for me to protest my Mind and Opinion to be, that till your Majesty shall otherwise determine and order, all actual and full Obedience is to be given to the *Ecclesiastical Jurisdiction*, as it now stands ; and again, when your Majesty has determined and ordered, that every good Subject ought to rest satisfied, and obey your Majesty's Laws, Ordinances, and royal Commands."

^a See pag. 3. of this Volume.

^b Viz. in the preceding Section.

^c Viz. in the foregoing Section, and in the *de Augment. Scientiar.* Sect. XXVIII.

Actors themselves do not. And being conscious to myself, that what I shall offer arises from no Vein of Popularity, Ostentation, Desire of Novelty, Partiality to either Side, Disposition to intermeddle, or any the like Leaven; I conceive Hopes, that what I want in Depth of Judgment, may be countervail'd by Simplicity and Sincerity of Affection.

Two Objections to it.

2. But here it may be proper to remove two Opinions, which directly confront and oppose all *Reformation in Religion*: the one bringing it to Nothing; and the other to an Impossibility. The *first* asserts it to be against good Policy to innovate any thing in Church Matters; and the *other* pretends that all Reformation must be after one Platform.

Whether good Policy allows of Reformation in Religion.

3. (1.) The *first* of these Objections is excellently answered by the Prophet; *stand upon the old Ways, and consider which is the right and true Way, and walk therein*. He does not say, *stand upon the old Ways, and walk therein*: for with all wise and moderate Persons, Custom and Usage are indeed of Reverence sufficient to cause a Stand; and make them look about them; but are no Warrant to guide and conduct them: so as to be a just Ground of Deliberation, but not of Direction. And who knows not that Time is truly compared to a Stream, which carries down fresh and pure Waters into that Dead-Sea of Corruption, surrounding all human Actions? Therefore, if Men shall not by their Industry, Virtue, and Policy, as it were with the Oar, row against the Stream, and Bent of Time; all Institutions and Ordinances, be they never so pure, will corrupt and degenerate. And I would ask why the *Civil State* should be purged, and restored, by good and wholesome Laws, made every Session of Parliament, devising Remedies as fast as Time breeds Mischief; and yet the *Ecclesiastical State* continue upon the Dregs of Time, and receive no Alteration at all? If it be replied, that had the like Intermission been used in Civil Affairs also, the Error had not been great; surely the Wisdom of this Nation has thought otherwise, from Experience, for some hundreds of Years. But if it be said, that there is a Difference between Civil and Ecclesiastical Matters; one might as well say, that Churches and Chapels need no repair, tho Castles and Houses do: whereas, commonly, to speak the truth, Dilapidations of the inward and spiritual Edifices of the Church, are in all times as great as the outward and material. Sure I am, that the very Word and Stile of Reformation, used by our Saviour, *from the Beginning it was not so*, was applied to *Church Matters*; and those of the highest nature; viz. the *Moral Law*.

The Church of England compared with foreign Churches.

4. He were indeed ungrateful, and unwise, who should deny that the Church of *England* flourished under Queen *Elizabeth*. But to compare our own with foreign Churches, I would rather compare them in Virtues than in Defects; or rather as the Vine and the Olive, to see which was the most fruitful; than as the Briar and the Thistle, to discern which was the most unprofitable. For the same Reverence should be used to the *Church*, as the good Sons of *Noah* used to their Father's Nakedness; viz. to go as it were backwards,

backwards, help the Defects thereof, and yet dissemble them. And it must be acknowledged, that scarce any Church, since the primitive one, yielded, in like Number of Years, and Latitude of Country, a greater Number of excellent Preachers, famous Writers, and grave Governours : and for the Discipline and Orders of the Church, as many ; the chiefest of them holy and good. Yet if St. *John* were to write an Epistle to the Church of *England*, as he did to that of *Asia*, it would surely contain the Clause, *I have a few Things against thee.*

5. Another Objection under this Head regards not the Matter, but the *The best Time* Time ; and pretends, that tho Reformation were necessary ; yet it is not *for Reforma-* now seasonable, at his Majesty's first Entrance. But *Hippocrates* said, *If* *any Alteration be necessary, make it at first*^{d.} And all Examples shew, that, as the wisest Princes have always been slow in removing Servants and Officers upon their coming in ; so for rectifying Abuses and Enormities, and for reforming the Laws, and Policy, of their States, they have chiefly endeavoured to ennoble and recommend their Beginnings by them : as well knowing that the first Impression with the People continues long ; and that when Mens Minds are most in Expectation and Suspense, they are then best wrought upon. Hence it seems to me, that as the Spring of the Year is the best Time for purging the natural Body ; so the Spring of Kingdoms is the properest Season for the purging and rectifying of political Bodies.

6. There remains another Objection, rather of Suspicion than of Rea- *That Altera-* son ; yet such as makes a great Impression in the Minds of wise and well affected Persons ; viz. *that if a Way be given to Alteration, tho in remo-* *tion for the* *better is to be* *feared.* *ving Abuses ; yet it may so acquaint Men with the Sweetness of Change,* as to undermine the Stability even of that which is sound and good. This surely had been a just Allegation in the ancient Contentions and Divisions between the People and Senate of *Rome* ; where things were carried at the Appetites of the Multitude, who can never keep within the compass of Moderation : but these things having an orderly Passage under a King of a royal Power, and approved Judgment ; that knows as well the Measure of Things, as the Nature of them ; 'tis surely a needless Fear. For a wise King, with the Advice of his Council, will discern what Things are intermixed, like the Tares among the Wheat ; what have their Roots so entangled, that the one cannot be pulled up without endangering the other ; and what are mixed, but as the Chaff and the Corn, which need only the Fan to sift and separate them. And so much for the first Opinion of admitting no Reformation at all.

7. (2.) For the *second* Opinion, *that there should be but one Form of Dis-* *No Form of* *Church Dis-* *cipline direct-* *ed in Scrip-* *ture.* *cipline in all Churches ; and that imposed by the Necessity of a Command, and* *Prescript out of the Word of God :* it is a Matter whereof Volumes have been

^d *Si quid moves, a principio move.*

been written; and therefore cannot receive a short Decision. But, for my part, I confess, that in reading the Scriptures, I could never find any such thing; but that God had left the like Liberty to Church Government, as he has to the Civil Government; to be varied according to Time, Place, and Accidents: which nevertheless his high and divine Providence orders and disposes. For all Civil Governments are restrained from God to the general Grounds of Justice and Manners; but their Policies and Forms are left free: so that Monarchies and Kingdoms, Senates and Seignories, popular States, and Commonwealths, are lawful; and where they are planted, ought to be maintained inviolate.

Rites and Ceremonies left to Discretion.

8. Thus in Church Matters, the Substance of Doctrine is immutable; and so are the general Rules of Government: but for Rites and Ceremonies, the particular Hierarchies, Policies, and Disciplines of Churches; they are left at large. 'Tis therefore proper to return to the ancient Bonds of Unity in the Church of God; which were one Faith, one Baptism; and not one Hierarchy, one Discipline. And here we must observe the League of Christians, as it is delivered by our Saviour; which in Substance of Doctrine is this; *He that is not with us, is against us*: but in things indifferent, and only regarding Circumstances this; *He that is not against us, is with us*: provided the general Rules be observed; viz. that Christ's Flock be fed; that there be a Succession of Bishops and Ministers, which are the Prophets of the New Testament; that there be a due and reverent Use of the Power of the Keys; that those who preach the Gospel, live by the Gospel; that all things tend to Edification; that all things be done decently, and in order, &c. But other Matters are left to the holy Wisdom and spiritual Discretion of the Master Builders, and inferior Builders in Christ's Church; according to the excellent Allusion of the primitive Father, who observed that Christ's Garment was without Seam; and yet the Churches Coat of many Colours: and thence set down as a Rule; *Let the Variety of the Garment continue, but no Rent be made*.

Primitive Examples how to be followed.

9. In this Variety, however, it is a safe, and a wise Course, to follow good Examples and Precedents; but then, by the Rules of Imitation and Example, we must consider, not only what Things are best; but what are most suitable: for instance, the Government of the Church in the purest Times, of the first good Emperors that embraced the Faith. For the Times of Persecution, before temporal Princes received Christianity, were excellent Times for Doctrine and Manners; but are improper and unsuitable Examples of external Government and Policy. And so much for this general Point: We next proceed to the particular Points of Reformation.

The Government of Bishops to be continued.

10. And first for the Government of Bishops. Without prejudging the Precedents of other reformed Churches; I hold the Government of Bishops warranted by the Word of God; and by the Practice of the ancient Church in the best Times; and that it is much more convenient for Kingdoms

In veste varietas sit, scissura non sit.

doms than a Parity of Ministers, and Government by Synods. But then it is to be considered, that the Church is not now to plant, or build; but only to be pruned from Corruption; and to be repaired and restored in certain Decays. For it is worth noting, what the Scripture says, that *the Priesthood being translated, there must also be a Translation of the Law.* And it is not possible, on account of the great and near Sympathy between the Civil and the Ecclesiastical State, to make so grand an Alteration in the Church, without having a dangerous Effect upon Kingdoms; and therefore it is fit that this Controversy should be in *Peace and Silence.*

11. But there are two Circumstances in the Administration of Bishops, wherein I could never be satisfied: the one is the sole Exercise of their Authority; the other the Deputation of their Authority.

The Exercise and Deputation of their Authority.

12. For the first; the Bishop grants Orders alone^f, excommunicates alone, judges alone. This seems to be a thing almost without Example in good Governments; and therefore not unlikely to have crept in, during degenerate and corrupt Times. The greatest Kings and Monarchs have their Councils. There is no temporal Court in *England*, of the higher sort, where the Authority rests in one Person. The *King's Bench*, *Common Pleas*, and the *Exchequer*, are Benches of a certain Number of Judges. The *Chancellor of England* has an Assistance of twelve *Masters in Chancery*. The *Master of the Wards* has a Council of the Court: so has the Chancellor of the *Dutchy*. In the *Exchequer Chamber*, the *Lord Treasurer* is joined with the Chancellor, and the Barons. The *Masters of the Requests* are always more than one. The *Justices of Assize* are two. The *Lord Presidents* in the North, and in *Wales*, have Councils of diverse. The *Star-Chamber* is an Assembly of the King's Privy-Council, interspersed with the Lords Spiritual and Temporal: so that in the Civil Courts, the principal Person has always his Colleagues or Assessors.

Bishops acting alone, not countenanced by parallel Instances.

13. The like is to be found in other well governed Common-Wealths abroad, where the Jurisdiction is yet more dispersed; as in the Courts of Parliament in *France*, and other Places. No Man will deny, but the Acts that pass the Bishop's Jurisdiction, are of as great Importance as those that pass the Civil Courts: for Mens Souls are more precious than their Bodies or Goods; and so are their good Names. Bishops have their Infirmities, and no Exemption from that general Malediction pronounced against all Men living; *Wo to him that is alone when he falls, &c.* Nay, the first Warrant in spiritual Causes is directed to a Number: *Tell the Church*; which is not so in temporal Matters: and we see that in general Cases of Church Government, there are as well Assemblies of all the Clergy in Councils; as of all the States in Parliament. Whence should this sole Exercise of Jurisdiction come? Surely one may suppose, upon good Ground, that from *the Beginning it was not thus*; and that the Deans and Chapters were Councils about the Sees and Chairs of Bishops at the first; and were to them a Presbytery or Consistory; and intermeddled

not

^f See below, §. 14.

not only in the disposing of their Revenues and Endowments; but much more in ecclesiastical Jurisdiction. And it is probable, that the Deans and Chapters stuck close to the Bishops in Matters of Profit and the World; and would not lose their Hold, except in Matters of Jurisdiction; (which are accounted only Trouble and Attendance) and thus suffered the Bishops to encroach and usurp: so that the one continues whilst the other is lost. We see that the Bishop of *Rome* (*Fas enim & ab hoste doceri*) performs all ecclesiastical Jurisdiction, as in *Consistory*. And no question but the first Institutions in that Church were excellent.

Not so in the
Bishops of
Rome.

14. And this Consistory is made up of the Parish Priests of *Rome*, who term themselves *Cardinals*, à *cardinibus mundi*; because the Bishop pretends to be universal over the whole World. And of this again, we see many Shadows still remaining; as that the Dean and Chapter, for Form's sake, choose the Bishop; which is the highest Point of Jurisdiction: and that the Bishop when he grants Orders, if there be any Ministers casually present, calls them to join with him in the Imposition of Hands; and some other Particulars. Therefore it seems to me, a thing reasonable, religious, and agreeable to the first Institution, that Bishops in the greatest Causes, and those which require a spiritual discerning, (for Example, in the ordaining, suspending or depriving of Ministers; in Excommunication; in sentencing the Validity of Marriages and Legitimations; in judging criminal Causes, as Symony, Incest, Blasphemy, and the like,) should not proceed sole and unassisted. And this Point, as I understand it, is a Reformation that may be planted *sine strepitu*; and without any Disturbance at all. And it is a Matter that will give Strength to the Bishops, Countenance to the inferior Degrees of Prelates or Ministers, and the better Issue, or Proceeding, to the Causes that shall pass.

Whether
Strength
should be ad-
ded to the
Convocation.

15. And as I wish this Strength given to the Bishops by Council; so it may not be unworthy the royal Consideration, whether Strength should not be given to the general Council of the Clergy, the *House of Convocation*; which was restrained when the State of the Clergy became suspected to the Kingdom, on account of their late Homage to the Bishop of *Rome*: which Case is now altered.

Bishops not to
depute their
Authority.

16. For the *second* Point, which is the *Deputation of their Authority*; I see no perfect and sure Ground for it; as being somewhat different from the Examples and Rules of Government. The Bishop exercises his Jurisdiction by his Chancellor, and Commissary Official, &c. We see in all Laws in the World, Offices of Confidence and Skill cannot be put over, or exercised by Deputy; except it be especially contain'd in the original Grant: and in that Case it is doubtful. And for Experience, there was never any Chancellor of *England* that made a Deputy: there was never a Judge in any Court that made a Deputy. The Bishop is a Judge, and of a high Nature: whence comes it, that he should depute; considering that all Trust and Confidence, as was said, is personal and inherent; and nei-

* From the four Quarters of the World.

ther can, nor ought to be transposed. Surely, in this again we may say, *From the beginning it was not so*: but it is probable, that Bishops, when they gave themselves too much up to the Glory of the World, and became Grandees in Kingdoms, and great Counsellors to Princes, now delegated their proper Jurisdictions, as things of too inferior a Nature for their Greatness; and then in Imitation of *Kings* and *Counts Palatine*, they would have their Chancellors and Judges.

17. But that Example of Kings and Potentates affords no good Defence. *As Kings do*: For the Reason why Kings administer by their Judges, tho themselves be supreme Judges, are two: the *one*, because the Offices of Kings are, for the most part, Offices of Inheritance; and it is a Rule in all Laws, that Offices of Inheritance are rather Matters that ground in Interest than in Confidence; as they may fall upon Women, Infants, Lunatics and Ideots, who are incapable of executing Judicature in Person; and therefore such Offices, by all Laws, might ever be exercised and administered by Delegation. The *second* Reason is, the Amplitude of their Jurisdictions; which is as great as either their Birth-right from their Ancestors, or their Sword-right from God makes it. And therefore, if *Moses*, the Governor over no great People, and those collected together in a Camp, and not scattered in Provinces and Cities, and himself of an extraordinary Spirit, was yet insufficient in Person to judge the People; but did by the Advice of *Jethro*, approved from God, substitute Elders and Judges; how much more should other Kings and Princes?

18. There is also a *third* Reason; *viz.* that Kings either in Respect of the Commonwealth, or of the Greatness of their own Patrimonies, are usually Parties in Suits; and then their Judges stand indifferent between them and the Subject. But in the Case of Bishops, none of these Reasons hold. For first, their Office is elective, and for Life; not patrimonial or hereditary; and an Office merely of Confidence, Knowledge, and Qualification. And for the second Reason; it is true their Jurisdiction is ample and spacious; and their Time to be divided between the Labours, as well in the Word and Doctrine, as in Government and Jurisdiction: yet I do not see (supposing the Bishops Courts to be used incorruptly; and without any indirect Course to multiply Causes for Fees) but that the Bishop might very well for Causes of Moment, supply his judicial Function in his own Person. For one Chancellor of *England* dispatches the Suits of the whole Kingdom in Equity. And if hold be taken of what was said before, that the Bishop's Labour in the Word must take up a principal Part of his Time; so I may say again, that Matters of State have taken up most of the Chancellor's Time; they having been, for the most part, Persons upon whom the Kings of this Realm have relied for Matters of Counsel. And therefore there is no doubt but the Bishop, (whose Circuit is less ample, and the Causes in their Nature not so multiplying; with the Help of References and Certificates to and from fit Persons, for the better ripening of Causes in their mean Proceedings, and such ordinary Helps

incident to Jurisdiction,) may very well suffice his Office. Yet there is another Help; for the Causes that come before him are, Tythes, Legacies, Administrations, and other testamentary Causes; matrimonial Causes; Accusations against Ministers, tending to their Suspension, Deprivation, or Degrading; Symony, Incontinency, Heresy, Blasphemy, Breach of Sabbath, and other like Causes of Scandal. The two first of these, in my Opinion, differ from the rest: for Tythes and Testaments are Matters of Profit, and in their Nature temporal; tho by a Favour and Connivance of the temporal Jurisdiction, they have been allowed and permitted to the ecclesiastical Courts: the one to the end that the Clergy might sue for what was their Sustentation before their own Judges; and the other in a kind of Piety and Religion, which was thought incident to the Performance of the Wills of the Dead. And surely for these two the Bishop may with less Danger discharge himself upon his ordinary Judges. And I think likewise it will fall out, that those Suits are in the greatest Number. But for the rest, which require a spiritual Science and Discretion, in respect of their Nature, or of the Scandal, it were proper no Audience should be given but by the Bishop himself; he being also assisted, as was touched before. It were necessary also that he should be attended by his Chancellor, or some others his Officers, learned in the Civil Laws, for his better Instruction in Points of Formality, or the Courses of the Court; which if done, there were less Use of the *Officials Court*, whereof there is now so much Complaint. And Causes of the Nature aforesaid, being only drawn to the Audience of the Bishop; it would repress frivolous and prowling Suits; and give a grave and incorrupt Proceeding to such Causes as shall be fit for the Court.

The Oath
that obliges
Men to accuse
themselves.

19. There is a third Point also, not of Jurisdiction, but of Form of Proceeding, which may deserve Reformation: the rather, because it is contrary to the Laws and Customs of this Land; which, tho they do not rule those Proceedings, yet may be advised with for better Directions; and that is the Oath *ex Officio*, whereby Men are bound to accuse themselves; and even sworn to Blanks, and not to Accusations and Charges declared. But by the Law of *England* no Man is bound to accuse himself. In the highest Cases of Treason, Torture is used for Discovery, and not for Evidence. In capital Matters no Delinquent's Answer upon Oath is required; no, nor permitted. In criminal Matters not capital, handled in the *Star-Chamber*, and in Causes of Conscience handled in the Chancery, for the most part grounded upon Trust and Secrecy, the Oath of the Party is indeed required. But how? Where there is an Accusation and Accuser, which we call Bills of Complaint, (from which the Complainant cannot vary, and out of the Compass of which the Defendant may not be examined,) exhibited to the Court, and by Process notified to the Defendant. But to examine a Man upon Oath, out of the Insinuation of Fame; or out of Accusations secret and undeclared; tho it have some Countenance from the Civil Law, yet it is so opposite *ex diametro* to the Sense and

Sect. II. *the PEACE of the CHURCH.*

315

and Course of the Common Law, that it may well receive some Limitation.

20. For the *Liturgy*; great Respect and Care should be taken, lest by *Prayer to be* inveighing against the dumb Ministry, due Reverence be not withdrawn *reverenced*, from the *Liturgy*. For tho the Gift of Preaching be far above that of Reading; yet the Action of the *Liturgy* is as high and holy, as that of the Sermon. 'Tis said, *Domus mea domus orationis vocabitur: my House shall be called the House of Prayer*; not the House of Preaching. And whereas the Apostle says, *How shall Men call upon him, whom they have not believed? And how shall they believe unless they hear? And how shall they hear without a Preacher?* It appears, that as Preaching is the more Original, so Prayer is more Final; as the Difference is between the Seed and the Fruit: for the keeping of God's Law, is the Fruit of the Teaching of the Law; and Prayer, or Invocation, or divine Service, or *Liturgy*, is the immediate hallowing of the Name of God, and the principal Work of the first Table, and of the great Commandment of the Love of God.

21. 'Tis true, that the preaching of the Word of God is the sowing *As well as* of the Seed; it is the lifting up of the Brazen Serpent; the Ministry of *Preaching*, Faith; and the ordinary Means of Salvation: yet it is good to take Example, how the best Actions of the Worship of God may be extolled excessively and superstitiously. Thus the extolling of the Sacrament, bred the Superstition of the Mass; the extolling of the *Liturgy* and Prayers, bred the Superstition of the monastical Orders and Oraisons: and so, no doubt, Preaching likewise may be magnified and extoll'd superstitiously; as if the whole Body of Christ's Worship should be turned into an Ear. So that none of sound Judgment will derogate from the *Liturgy*, if the Form thereof be in all Parts agreeable to the Word of God, the Example of the primitive Church, and that holy Decency which St. Paul commends. And therefore the *first* Point is, that there be a *set Form of Prayer*; and that it be not left either to an extemporary or arbitrary Form. *Secondly*, that it consist as well of Lauds, Hymns, and Thanksgivings; as of Petitions, Prayers, and Supplications. *Thirdly*, that the Form thereof be quickened with some Shortness and Diversities of Prayers and Hymns; and with some Interchanges of the Voice of the People, as well as of the Minister. *Fourthly*, that it admit some Distinctions of Times, and Commemorations of God's principal Benefits, as well general as particular. *Fifthly*, that Prayers likewise be appropriated to several Necessities and Occasions of the Church. *Sixthly*, that there be a Form likewise of Words and *Liturgy* in the Administration of the Sacraments, and in the denouncing of the Censures of the Church, and other holy Actions and Solemnities. These things I think will not be much controverted.

The proper Form of Prayer.

22. But for the particular *Exceptions to the Liturgy* in the Form it now *Exceptions to* stands, I think many of them, allowing they were just, yet seem not to *the Liturgy*, be weighty; otherwise than that nothing ought to be counted light in Matters of Religion and Piety: as the Heathen himself could say, *Etiam*

vultu sæpe læditur pietas. Thus the Word *Priest* should not be continued, especially with Offence; the Word *Minister* being already made familiar. And it may be held as a good Rule in Translating, never to confound that in one Word in the Translation, which is precisely distinguished into two Words in the Original; for fear of Equivocation and Traducing. And therefore seeing the Word *ὑποτάκτους* and *ἱερεὺς*, are always distinguished in the Original; and the one used for a Sacrificer, the other for a Minister; the Word *Priest* being made common to both, whatever the Derivation be, yet in Use it confounds the Minister with the Sacrificer. And for an Example of this kind, I approve the Discretion and Tenderness of the *Rhemish* Translation, that finding in the Original the Word *ἀγάπη*, and never *ἔρως*, always translates Charity, and never Love; because of the Indifferency and Equivocation of the Word with impure Love.

Absolution.

23. As to the *Absolution*, it is not unworthy of Consideration, whether it may not be thought improper and unnecessary: for there are but two sorts of *Absolution*; both supposing an Obligation precedent; the one upon an Excommunication, which is religious and primitive; the other upon Confession and Penance, which is superstitious, or at least positive; and both particular, neither general. Therefore since the one is taken away, and the other has its proper Case, what means a general Absolution, wherein there is neither Penance nor Excommunication precedent? For the Church never looses, but where the Church has bound. And surely this at the first was allowed in a kind of spiritual Discretion; because the Church thought the People could not be suddenly weaned from their Conceit of absolving, or absolving, to which they had been so long accustomed.

Confirmation.

24. For *Confirmation*; to my Understanding, the State of the Question is, whether it be not a Matter mistaken and altered by Time; and whether that be not now made a subsequent to Baptism, which was indeed an Inducement to the Communion. For whereas in the primitive Church, Children were examined as to their Faith, before they were admitted to the Communion; Time may seem to have turned it, as if it had been to receive a Confirmation of their Baptism.

Baptism.

25. For *private Baptism by Women*, or *Lay-Persons*; the best Divines utterly condemn it: and I have often wondered, that whereas the Book in the Preface to publick Baptism, acknowledges that Baptism in the Practice of the primitive Church, was anniversary, and but at certain Times; which shews that the primitive Church did not attribute so much to Ceremony as to break an outward and general Order for it; the Book should afterwards allow of private Baptism, as if the Ceremony were of such Necessity, that the very Institution which committed Baptism only to the Ministers, should be broken in regard of the supposed Necessity. And therefore this Point of all others, I think, was but a *Concessum propter duritiem cordis*.

Sect. II. *the PEACE of the CHURCH.*

317

26. For the Form of *celebrating Matrimony*; the Ring seems to many, *Matrimony.* even of vulgar Sense and Understanding, a Ceremony not grave; especially to be made, as the Words make it, the essential Part of the Action: besides some others of the Words are noted in Speech to be not so decent and fit.

27. For *Musick in Churches*; that there should be Singing of *Psalms Church-Mu-* and spiritual Songs, is not denied: so the Question is *de modo*; where, if *sick.* a Man will look attentively into the Order and Observation of it, 'tis easy to discern between the Wisdom of the Institution, and the Excess of the late Times. For first, there are no Songs, or Verses, sung by the Choir, which are not supposed, by continual Use, to be so familiar with the People, as that they have them without Book; whereby the Sound hurts not the Understanding: and those who cannot read the Book, are yet Partakers of the Sense, and may follow it with their Mind. So again, after the reading of the Word, it was thought fit there should be some Pause for holy Meditations, before they proceeded to the rest of the Service: which Pause, was thought fit to be filled rather with some grave Sound, than with a still Silence; which was the Reason of playing upon the Organ after the Scriptures read: all which was decent, and tending to Edification. But then the Curiosity of Division, and Reports, and other Figures of Musick, have no Affinity with the reasonable Service of God; but were added in the more pompous Times.

28. For the *Cap and Surplice*; since these are things in their Nature in- *The Cap and* different, yet by some held superstitious; and since the Question is between *Surplice.* *Science and Conscience*; it seems to fall within the Apostle's Rule, *that the stronger condescend and yield to the weaker.* Only the Difference is, that it will be materially said, the Rule holds between private Man and private Man; but not between the Conscience of a private Man, and the Order of a Church. But yet, since the Question at this time is of a Toleration, not by Connivance, which may encourage Disobedience, but by Law, which may give a Liberty; it is good again to be advised whether it fall not within the Equity of the former Rule: the rather because the silencing of Ministers by this Occasion, is, in this Scarcity of good Preachers, a Punishment that lights upon the People, as well as upon the Party. And for the *Subscription*, it seems to me in the Nature of a Confession; and *Subscription.* therefore more proper to bind in the Unity of Faith, and to be urged rather for Articles of Doctrine, than for Rites and Ceremonies, and Points of outward Government. For however political Considerations and Reasons of State may require Uniformity; yet christian and divine Grounds look chiefly upon Unity.

29. To speak of a *learned Ministry*; it is true the Worthiness of the Pa- *The Case* stors and Ministers is of all other Points of Religion the most summary; *of a Preach-* or the most effectual towards the rest: but here, to my Understanding, *ing Ministry.* while Men go on in Zeal to hasten this Work, they are not aware of as great or greater Inconvenience, than they seek to remove. For while they inveh.

inveigh against a *dumb Ministry*, they make too easy, and too promiscuous Allowance of such as they account Preachers; having not Respect enough to their Learning in other Arts; which are Handmaids to Divinity; nor Respect enough to Years, except it be in case of extraordinary Gift; nor Respect enough to the Gift itself, which many times is none at all. For God forbid, that every Man who can take to himself the Boldness to speak an Hour together in a Church, upon a Text, should be admitted for a Preacher; tho he mean ever so well. I know there is a great Latitude in Gifts, and a great Variety in Auditories and Congregations; but yet so as that there is *aliquid infimum*, below which you ought not to descend. For you must rather leave the Ark to shake, as it shall please God, than put unworthy Hands to hold it up. And when we are in God's Temple, we are warned rather to *put our hands upon our Mouth, than to offer the Sacrifice of Fools*. And surely it may be justly thought, that among many Causes of Atheism, which are miserably met in our Age; as Schisms and Controversies, profane Scoffings in holy Matters, &c. it is not the least that many venture to handle the Word of God, who are unfit and unworthy. And herein I would have no Man mistake me, as if I extolled curious and affected Preaching; which is as much to be disliked on the other side; and breeds Atheism and Scandal as well as the former; (for who would not be offended at one that comes into a Pulpit, as if he came upon the Stage;) neither on the other side, would I discourage any who have a tolerable Gift.

Prophefying
to be restored;
as an Exercise.

30. But upon this Point I ground three Considerations: *First*, whether it were not requisite to renew that good Exercise practised in this Church some Years; (tho afterwards put down, indeed by Order from the Church, in regard of some Abuse thereof, inconvenient for those Times; and yet against the Advice and Opinion of one of the greatest and gravest Prelates of this Land, (and commonly called *Prophefying*; which was this.) The Ministers within a Precinct met upon a Week-day, in some principal Town, where there was some ancient grave Minister that was President, and an Auditory admitted of Gentlemen, or other Persons of Leisure. Then every Minister successively, beginning with the youngest, handled one and the same Part of Scripture; spending severally some Quarter of an Hour or better; and in the whole some two Hours: and so the Exercise being begun and concluded with Prayer, and the President giving a Text for the next Meeting, the Assembly was dissolved. And this was, as I take it, a Fortnight's Exercise; which, in my Opinion, seems the best Way that has been practised to frame and train up Preachers to handle the Word of God, as it ought to be handled. For we see Orators have their Declamations, Lawyers have their Moots, Logicians their Sophisms; and every Practice of Science has an Exercise of Erudition and Initiation, before Men come to the Life; only Preaching, which is the worthiest, and wherein it is most dangerous to do amiss, wants an Introduction, and is ventured and rushed upon at the first: but to this Exercise

cise of *Prophecy*, I could wish these two Additions: the one, that after *With Addition* this Exercise, which is in some sort publick, there were immediately a private Meeting of the same Ministers, where they might brotherly admonish one another; and especially the elder the younger; of any thing that had passed in the Exercise in Matter or Manner unsound and uncomely; and in a Word, might mutually use such Advice, Instruction, Comfort, or Encouragement, as Occasion directed; for publick Reprehension should be debarred. The other Addition I mean, is, that the same Exercise should be used in the Universities for young Divines, before they presumed to preach, as well as in the Country for Ministers. For they have in some Colleges an Exercise called a *Common-Place*; which can in no Degree be so profitable; being but the Speech of one Man at one Meeting. And if it be feared, that it may give Occasion to what Mens Speech for Controversies; this is easily remedied, by some strict Prohibition, that Matters of Controversy tending any way to the violating or disturbing the Peace of the Church, be not handled or entered into: which Prohibition, in regard there is ever to be a grave Person President; or Moderator, cannot be frustrated.

31. The second Consideration is, whether it were not convenient that there should be a more exact Probation and Examination of Ministers: namely, *Examination of Ministers before Ordination.* that the Bishops should not ordain alone, but by Advice: and then that ancient holy Order of the Church might be revived, by which the Bishop ordained Ministers but at four set Times of the Year; which were called *Quatuor Tempora*; and which are now called *Ember-Weeks*: it being thought fit to accompany so high an Action with general Fasting and Prayer, and Sermons, and all holy Exercises. And the Names likewise of those that were to be ordained, were published some Days before their Ordination; to the end that Exceptions might be taken if just Cause were.

32. The *third* Consideration is, if it be the Case of the *Church of England*, that were a Computation made of all the parochial Churches, allowing the Union of such as were too small and adjacent; and again a Computation made of the Persons who are worthy to be Pastors; and upon the said Estimate, if it fall out that there are more Churches than Pastors; then of Necessity Recourse must be had to one of these Remedies; viz. either that Pluralities must be allowed; especially if you can by Permutation make the Benefices more compatible; or Preachers to have a more general Charge, to supply and serve by turn the Parishes unfurnished: for that some Churches should be provided of Pastors able to teach; and others wholly destitute; seems to me against the Communion of Saints and Christians; and against the Practice of the Primitive Church.

33. *Excommunication* is the greatest Judgment upon Earth; being *Of the Abuse of Excommunication.* that which is ratified in Heaven; and a precursory or prelatory Judgment of the great Judgment of Christ in the End of the World. And for this to be used irreverently, and to be made an ordinary Process,

to lacky up and down for Fees; how can it be without Derogation to God's Honour, and making the Power of the Keys contemptible? I know very well the Defence thereof, which has no great Force; that it issues not for the Thing itself, but for the Contumacy. I deny not, but this Judgment is of the Nature of God's Judgments; of the which it is a Model. For as the Judgment of God takes hold of the last Sin of the Impenitent, and takes no hold of the greatest Sin of the Convert or Penitent; so Excommunication may in Case issue upon the smallest Offence, and in Case not issue upon the greatest: but is this Contumacy such a Contumacy wherein Excommunication is now used? For Contumacy must be such as the Party, so far as the Eye and Wisdom of the Church can discern, stands in a State of Reprobation and Damnation; as one, who for that time seems given over to final Impenitency. Upon this Observation I ground two Considerations: the *one*, that this Censure be restored to the true Dignity and Use thereof; which is, that it proceed not but in Causes of great Weight; and be decreed not by any Deputy or Substitute of the Bishop, but by the Bishop in Person; and not by him alone, but by the Bishop assisted.

*Its Re-
flection.*

*By Permuta-
tion.*

34. The *other* Consideration is, that in lieu thereof, there be given to the Ecclesiastical Court some ordinary Procefs, with such Force and Coercion as appertains; that thus the Dignity of so high a Sentence being retained, and the Necessity of a mean Procefs supplied, the Church may indeed be restored to the ancient Vigour and Splendor. To this End, joined with some other holy and good Purposes, there was a Bill brought into Parliament, in the three and twentieth Year of the Reign of Queen Elizabeth; which was the gravest Parliament that I have known; and the Bill was recommended by the gravest Counsellor of State in Parliament; tho afterwards it was stayed by the Queen's special Command; the Nature of those Times being considered.

*Non-Resi-
dents, and
Pluralities.*

35. For *Non-Residence*; except in Case of necessary Absence, it seems an Abuse derived from Covetousness and Sloth: for that Men should live of the Flock they do not feed, or of the Altar at which they do not serve, can hardly receive a just Defence: and to exercise the Office of a Pastor, in Matter of the Word, and Doctrine, by Deputies, is a thing unwarranted. The Questions upon this Point arise on the Cases of Exception and Excuse, which shall be thought reasonable and sufficient, and which not. For the Case of Chaplains; I should think, that the Attendance they give at Court, and in the Houses and Families of their Lords, were a juster Reason why they should have no Benefice; than why they should be qualified to have two: for as it stands with Christian Policy, that such Attendance be in no wise neglected; because the Good, which thence ensues to the Church of God, may exceed, or countervail that which may follow from their Labours in any, tho ever so large a Congregation; so it were reasonable that their Maintenance should honourably and liberally proceed from thence, where their Labours are employ'd. Nei-

ther

ther are there wanting, in the Church, Dignities and Preferments not joined with any exact Cure of Souls; by which, and by the Hope of which, such Attendants in ordinary may be farther encouraged and rewarded. And as for extraordinary Attendants, they may very well retain the Grace and Countenance of their Places and Duties, at Times incident thereto, without Discontinuance or *Non-Residence* in their Pastoral Charges.

36. Next, for the Case of attending Studies in the Universities, it will *Study.* more easily receive an Answer; for Studies do but serve and tend to Practice: and therefore, for that which is most principal and final to be left undone, for the attending of that which is subservient, seems to be against Proportion of Reason. And they proceed well in all Knowledge who couple Study with Practice; and do not first study altogether, and then practise altogether; and therefore they may very well study at their Benefices.

37. *Thirdly*, for the Case of extraordinary Service of the Church; as *Extraordi-* if some Pastor be sent to a general Council, or to Convocation; and *nary Service* likewise for the Case of Necessity, as in the Particular of Infirmary of *of the Church.* Body, and the like; every Man will allow there may be some Substitution for such a Time. But the general Case of Necessity is the Case of Pluralities; the Want of Pastors, and Insufficiency of Livings considered; on Supposition that a Man faithfully and incessantly divide his Labours between two Cures: which kind of Necessity I come now to speak of.

38. For *Pluralities*; in case the Number of able Ministers were sufficient, and the Value of Benefices sufficient, then Pluralities were in no sort tolerable. But we must take heed we desire not Contraries. For to desire that every Parish should be furnished with a sufficient Preacher; and to desire that Pluralities be forthwith taken away; is to desire Things contrary; considering, *de facto*, there are not sufficient Preachers for every Parish: whereto add, that there is not sufficient Living and Maintenance in many Parishes for a Preacher; and it makes the Impossibility yet much greater. The Remedies are but three; *viz. Union, Permutation, and Supply.* *Union* of such Benefices as have the Living too small, and the Parish not too large, and that are adjacent. *Permutation* to make Benefices more compatible; tho Men be over-ruled to some Loss in changing a better for a nearer. *Supply*, by stipendiary Preachers, to be rewarded with some liberal Stipends, to supply, as they may, such Places which are unfurnished of sufficient Pastors: As Queen *Elizabeth*, among other gracious Acts, erected certain of them in *Lancashire*; towards which Pensions, I see no Reason but Reading Ministers, if they have rich Benefices, should be charged.

39. As for *Church Maintenance*; it should well be weighed what is *Jure The provi-* *divino*, and what *Jure positivo*. 'Tis a Constitution of the divine Law, *sion for the* from which human Laws cannot derogate; that those who feed the *Maintenance* *of the Church.* Flock, should live of the Flock; that those who serve at the Altar, should

should live of the Altar; that those who dispense spiritual Things, should reap temporal Things: of which it is also an Appendix, that the Proportion of this Maintenance be not small or necessitous, but plentiful and liberal. Whence, that all the Places and Offices of the Church be provided of such a Dotation, as they may be maintained, according to their several Degrees, is a Constitution permanent and perpetual: but for Particularity of the Endowment, whether it should consist of Tythes, or Lands, or Pensions, or be mixed, might make a Question of Convenience; but no Question of precise Necessity. Again, that the Case of the Church, *de facto*, is such, that there is a Want of Patrimony in the Church, is confessed. For the principal Places, namely, the Bishop's Livings, are in some Particulars not sufficient; and therefore obliged to *Commendams* be supplied by Toleration of *Commendams*; things of themselves unfit, and ever of a bad Report. And for the Benefices and Pastors Places, it is manifest that many of them are very weak and penurious. On the other side, that there was a Time when the Church was rather burthened with Superfluity, than with Want, is likewise apparent; but it is long since; so that the Fault was in others, and the Want redounds to us. Again, that it is to be wished Impropropriations were returned to the Church, as the most proper and natural Endowments thereof, is a Thing likewise wherein Mens Judgments will not much vary. Nevertheless, that it is an Impossibility to proceed now, either to their Resumption or Redemption, is as plain on the other side. For Men are stated in them by the highest Assurance of the Kingdom, which is, Act of Parliament; and the Value of them amounts to much above ten Subsidies; and the Restitution must of Necessity pass those Hands, where they are now in Possession or Interest.

Impropropriations.

40. But from these things, which are manifestly true, to draw some Conclusions. First, in my Opinion, I must confess, that all the Parliaments since 27 and 31 of *Hen. VIII.* who gave away Impropropriations from the Church, seem to stand in a sort obnoxious, and obliged to God in Conscience, to do somewhat for the Church, to reduce the Patrimony thereof to a Competency. For since they have debarred Christ's Wife of her Dowry, it were reason they made here a competent Jointure. Next, to say that Impropropriations should be only charged; that carries neither Possibility nor Reason. Not Possibility, for the Reasons touched before: Not Reason, because if it be conceived, that if any Person be charged, it would be a Re-charge, or Double-Charge, inasmuch as he pays Tythes already, that is a thing mistaken. For it must be remembered, that as the Realm gave Tythes to the Church, so the Realm since has given Tythes away from the Church to the King; as they may give the eighth or ninth Sheaf. And therefore the first Gift being evacuated, it cannot go in Defeasance, or Discharge, of that perpetual Bond, wherewith Men are bound to maintain God's Ministers. And so we see in Example, that diverse well-disposed Persons, not Impropropriators, are

Sect. II *the PEACE of the CHURCH.*

323

are content to increase their Preachers Livings ; which, tho in Law it is but Benevolence, yet before God it is Conscience. Farther, that Impropriations should be somewhat more deeply charged than other Revenues of the like Value, methinks cannot well be denied ; both in regard of the ancient Claim of the Church, and the Intention of the first Giver : and again, because they have passed, in Valuation between Man and Man, somewhat at a less Rate, in regard of the said Pretence or Claim of the Church, in Conscience, before God. But of this Point, touching Church Maintenance, I do not think fit to enter into farther Particulars at present.

End of the General Supplement to the De Augmentis Scientiarum.



NEW MACHINE

INSTAURATION.

PART II.

Vol. II.

With

for editing, conducting, and
in the search of
UNIVERSAL PHILOSOPHY,
the history of Man over the
WORKS of the CREATION.

THE HISTORY OF THE

INSURRECTION

PART II

OF THE

T.

Vol. II

Novum Organum Scientiarum :

A

NEW MACHINE

FOR REBUILDING the

SCIENCES;

OR, A

Particular LOGICK for discovering ARTS,

AND

Interpreting the Works of Nature.

WITH

RULES for assisting, conducting, and
guarding the UNDERSTANDING in the Search of
Truth; and *Examples of* ENQUIRY for raising a
solid Structure of UNIVERSAL PHILOSOPHY;
and extending the EMPIRE of MAN over the
WORKS of the CREATION.

Notum Organum Scientiarum:

A

NEW MACHINE

For Rebuilding the

SCIENCE:

OR, A

Particular Logic for discovering Arts,

AND

Interpreting the Works of Nature.

WITH

Rules for assisting conducting, and
examining the Understanding in the search of
Truth; and a Method of reasoning for raising a
solid Foundation of UNIVERSAL PHILOSOPHY;
and ascending the History of Man over the
WORKS of the CREATION.



P R E F A C E.



S the following Piece appears to have been the least read of all the Author's Writings, tho' in itself of great Importance; 'tis agreeable to our Intention of facilitating the understanding of his Philosophical Works in general, to have a particular regard to the facilitating of this. It seems, therefore, proper to give here, by the way of Preparative, First, a short analytical View of the entire Plan, and Design of the Piece; and, Secondly, the Rules by which the Author seems to have proceeded in it.

The Design of the *Novum Organum*, was to execute the Second Part of the *INSTAURATION*; by advancing a more perfect Method of using the rational Faculty, than Men were before acquainted with; in order to raise and improve the Understanding, as far as its present imperfect State admits; and enable it to conquer and interpret the Difficulties and Obscurities of Nature.

With this View it undertakes the Care and Conduct of the Understanding; and draws out and describes the Apparatus and Instruments that conduce to the true forming, modelling and applying the Power of Reasoning: whence it appears to endeavour at a new kind of Logick, tho' greatly superior to the Common, which, thro' the Abuses crept into it, appears fitter to corrupt than strengthen and improve the Mind. For the Scope and Use of this new Logick, is not to discover Arguments and probable Reasons, but Arts and Works.

It is divided into two principal Parts; viz. a preparatory Part, and one that is scientific and instructive. The first Part tends to prepare and purge the Mind; and fit it to receive and use the Instructions and Instruments laid down in the second: the Mind, like a Mirror, requiring to be levell'd and polish'd, or discharg'd of its false Imaginations

tions and perverted Notions, before it can be set to receive and reflect the Light of Truth and just Information.

And this levelling Part is of four Kinds, with respect to the four different Sorts of Idols, or false Notions, that possess the Mind. These Idols are either acquired or natural; and proceed either from the Doctrines and Sects of Philosophers, the perverted and corrupt Laws and Methods of Demonstration; or else are innate and inherent in the very Constitution of the Mind itself. The first Labour, therefore, is to discharge and free the Mind from it's Swarms of false Theories, which occasion such violent Conflicts and Oppositions. The next Point is to release it from the Slavery of perverted Demonstrations. And the last is, to put a Check upon this seducing Power of the Mind; and either to pluck up these innate Idols by the root; or, if that cannot be done, to point them out, that they may be thoroughly known and watched; and so have the Depravities, which they occasion, corrected. This levelling Part, therefore, is perform'd by three kinds of Confutation; viz. the Confutation of Philosophies, the Confutation of Demonstrations, and the Confutation of the natural unassisted Reason.

When thus the Mind is render'd equable and unbiass'd, the Work proceeds to set it in a proper Situation, and, as it were, with a benevolent Aspect to the remaining Instructions; whereby the Business of preparing the Mind is still further carried on. And the whole Drift of this ensuing Part, is only to possess Mankind with a just Opinion of the whole INSTAURATION for a time, that they may wait with Patience the Issue and Event thereof; upon solid Assurances of some considerable Benefit and Advantage from it, when its Scope shall come to be well understood. And thence it proceeds distinctly to obviate all the Objections, and false Suspicions, which may be rais'd about it, thro' the prevailing Notions and Prejudices drawn from religious Considerations, those of abstract Speculation, natural Prudence, Distrust, Levity, &c. Thus endeavouring to pacify and allay every Wind of Opposition.

To render this Preparation still more complete and perfect, the next thing is to raise the Mind from the Languor and Torpidity it may contract from the apparent miraculous Nature of the Thing. And as this wrong Disposition of the Mind cannot be rectified without the Discovery of Causes, the Work proceeds to mark out all the Impediments which have hitherto perversely retarded and block'd the Way of true Philosophy; and thus makes it appear no Wonder at all, that Mankind should have been so long entangled and perplexed with Errors.

When the Ways of removing these Impediments are shewn, there follows a Chain of Arguments for establishing a solid Foundation of
Hope

Hope for the better Success of genuine and serviceable Philosophy in future. For it is hereby demonstrated, that tho' the Interpretation of Nature, intended by the INSTAURATION, may indeed be difficult; yet much the greater Part of the Difficulties attending it are in the Power of Man to remove, as arising from the Nature of the Senses, and Things themselves; but only require that the Mind be rectified in order to their Removal. And this first general Part concludes with an Account of the Excellence of the End in View.

The preparatory Part being thus dispatch'd, the Work proceeds to the Business of Information, the Perfecting of the Understanding, and the Delivery of the Art of working with this new Machine in the Interpretation of Nature. This is laid down in three several Branches, with regard to the Sense, the Memory, and the Reason; each whereof is assisted in its turn.

The Assistance afforded to the Sense shews these three Things; viz. (1.) How a just Notion may be form'd; and how the Report of the Senses, which is always respective to Man, may be rectified, and made correspondent, or set to the Truth of the Universe: for no great Stress is laid upon the immediate Perceptions of the Sense; but only so far as they manifest the Motion or Alteration of Things. (2.) How those Things which escape the Senses, either thro' the Subtlety of their Wholes, the Minuteness of their Parts, the Remoteness, Slowness, or Velocity of their Motion, the Familiarity of the Object, &c. may be brought to the Senses, and submitted to their Judgment: and in case they cannot be thus render'd sensible, what is to be done; and how the Senses are to be assisted upon this failure, either by Instruments, or skilful Observations of the Degrees they act in, the Indications of proportionate Bodies, from such as are sensible to such as are insensible, or by other Means and Contrivances to help the Senses. (3.) The Ways are shewn of compiling a History of Nature, and engaging in the Business of Experiments; what that History of Nature should be, which is required for the building up of Philosophy; and again, what kind of Experiments should be gone upon where that History proves deficient: and here certain Suggestions and Cautions are occasionally interspers'd, for raising and fixing the Attention; as much Matter seems to be already contained in Natural History; and as Experiments long since known, are not yet brought into use, thro' Inattention of Mind. And thus the Senses are provided for, as they require Matter and Assistance: for History and Experiments supply the Matter; Substitutions supply the Defects; and Rectifications correct the Errors of the Senses.

The Memory is assisted in such a manner, as shews how, from a Multitude of Matters, and a confused Heap of Natural History in general, particular Histories may be deduced, ranged and disposed; so as that the Judgment shall act with Freedom, and perform its Office to Advantage: For a sober Estimation must be made of the Powers of the Mind, without hoping that they may extend to the Infinity of Things; as 'tis manifest that the Memory is unable to comprehend and retain any vast Number of Particulars; or to suggest all those that belong to any particular Enquiry. A Remedy is proposed for the first Defect by this Rule, That no Enquiry or Discovery be trusted but in writing; tho' this alone is not sufficient, unless the Matter be thrown into a regular Table, at once to assist both the Memory and the Reason.

And after the Subject of an Enquiry is fix'd upon, well defin'd, distinguished, separated from the Mass of other Things, and set in a clear Light, there are three Assurances afforded the Memory. The First is, to shew what Matters those are which ought to be enquired into with relation to the Subject propos'd; or to suggest particular Heads of Enquiry, from a Survey of the History of Nature. The Second is, to shew in what Order the Things themselves are to be ranged and digested into Tables; tho' this without expecting to hit upon the true Order of Things originally established in Nature: for the Division here proposed is arbitrary; and only serves to make some Separation of Things, that the Mind may act upon them: as Truth will easier rise from Falshood than from Confusion; and as Reason may easier correct a Division than enter the Mass of a Subject at once. The Third Assurance, is to shew by what Means, and at what Times, an Enquiry is to be renew'd; and how the preceding Tables are to be transpos'd and form'd into fresh ones; and how often the Enquiry should be repeated: for the first, or even the second Set of Tables are not to stand; as being no more than Essays or first Attempts towards an Enquiry. This general Assurance, therefore, to the Memory, consists of three Points; or regard the (1.) Heads of Enquiry, (2.) the forming of Tables, and (3.) the renewing of the Enquiry.

Assurance is next afforded to the Reason; for tho' the former Assurances have regard thereto, yet those of themselves do not teach how to form Axioms; but only distinct Notions, and a digested History. And here that Assurance to the Reason is most desirable, which best fits it for performing its Office, and obtaining its End.

The Operation of the Reason, tho' but one thing in itself, is yet double in its End and Use: for the End of Man is either Knowledge and Contemplation, or Action and Execution; so that he desires either to know and consider Causes; or to have a Power and Opportunity of

of producing Effects. Whence 'tis the Intention of human Knowledge to understand the Causes of an Effect, or Nature assign'd, in any Subject; and the Intention of the human Power to procure, or superinduce, within all possible Limits, any Effect, or Nature, upon a given Basis of Matter.

But these two Intentions, if duly consider'd, come in Effect to one and the same Thing: for that which in Contemplation holds the Place of the Cause, holds, in Operation, the Place of the Means; since we understand by Causes, and operate by Means. So that if all the Means requisite to the Production of every Work were ready at the Call of Man; there would be no Occasion for treating these two separately. But Mens Power in operating is confin'd to much narrower Bounds than their Knowledge; by Reason of their various Necessities and Wants: whence they frequently require to the operative Part, not a general and open Knowledge, so much as a prudent, ready, and well-vers'd Sagacity in the Choice of such Things as they have at hand; on which account it might seem proper to treat the Theory and Practice separate, were it not for the pernicious and inveterate Custom of running into abstract Notions; which makes it necessary to join them together; and accordingly the Author mixes the contemplative with the executive Part. The Contemplative Part is shewn to consist wholly in one Thing; which is no other than the forming of just Axioms, or Chains of Axioms, which are solid Portions of Truth; as if they had all three Dimensions: whereas simple Notions are, in comparison with them, but as Surfaces. And there is no other Way of drawing, and raising these Axioms, but by a legitimate and proper Form of Induction; capable of breaking and separating Experience; and concluding of necessity, after all the proper Rejections and Exclusions are made. For 'tis manifest, that whatever is concluded by Induction of any Kind, is at the same Time both discovered and judged of; and does not depend upon Principles or Mediums, but stands entirely upon its own Foundation, without farther Proof or Support: much more must Axioms, rais'd by a true and legitimate Form of Induction, subsist from within themselves; and prove more solid, just, and certain, than even those call'd Principles. The Author, therefore, is extremely solicitous to deliver, with Diligence and Perspicuity, this whole Affair of Induction, or the Doctrine of raising Axioms.

There are found to be three Things of capital Importance in this Business of Axioms; and without an Explanation whereof, the Enquiry propos'd, tho' excellent in itself, might yet be thought tedious and

operose in use. These three Things are the Method of (1.) continuing, (2.) varying, and (3.) contracting an Enquiry; so that nothing in the whole Procedure may be left abrupt, contradictory, or be protracted too long, with respect to the Shortness of Life. The Use of the Axioms discover'd by legitimate Induction is, therefore, next taught; so as by their Means to investigate and raise up others, of a higher and more general Nature; 'till, by sure, and uninterrupted Steps, Men come, without Stop or Gap, to the Top-round, or Unity of Nature; there being, at the same time, added, a Way of examining and verifying these higher Axioms by primary Experiments; to preserve them from tumbling back again to Conjectures, Probabilities, and Idols. And this is the Doctrine of the Continuation of Enquiries.

It was before observed, that the practical or executive Part, is, by the Form of Induction, continually intermix'd and blended along with the contemplative Part: for the Nature of Things is such, that Propositions and Axioms deduced, by logical Arguments, from general Principles, and derived down to Particulars and Works, give but a very obscure and uncertain Information; whereas Axioms, drawn from Particulars, lead on to new Particulars, as it were, by a manifest Correspondence, and continued Thread. And here Men are required to remember, that in all active or practical Enquiries they must perpetually proceed downward, or in the descending Scale; which is of no Use or Service in contemplative Enquiries: For every Operation consists in Individuals, which are Things of the lowest Class; and therefore must be descended to by Steps from Generals. Nor, again, is it possible to arrive at them by simple Axioms; for all Works, and the Methods of working, are perform'd and laid out from a Collection of different Axioms.

This active or practical Doctrine consists of three Parts; the First whereof proposes a distinct and proper Method of Enquiry, where not a Cause nor an Axiom, but the effecting of a Work, is the Point in View, and the Subject of the Enquiry. The Second teaches a Method of making General Practical Tables, by Means whereof all Kinds of Plans for Works are laid down with greater Ease, and Readiness. The Third delivers a certain Method of discovering or investigating Works, which, tho' incomplete, has still its Uses; as, by Means thereof, Men may proceed from Experiment to Experiment, without the raising of Axioms: for as one Axiom leads to another, so likewise there is a certain Method of Discovery open from one Experiment to another: and this Method, tho' uncertain and fallacious, still deserves to be mention'd.

Next are shewn the Methods of varying Enquiries, both according to the different Reasons for which they are undertaken, and the different Natures of the Things upon which they turn. Where, dropping the Consideration of final Causes, which have entirely perverted natural Philosophy; the Method of varying, turning, and tabling Enquiries is shewn; for investigating the Forms, or true peculiar discriminating Natures and Properties of Things: which, 'till now, was ever look'd upon as a desperate and hopeless Attempt; as well it might, whilst none but logical Arguments, and casual Reasonings, were employ'd about it.

The Design of the Contraction of Enquiries, is to shew the shortest Ways of coming at the Things sought for, by cutting across the winding Roads that lead to them indirectly. And here Things are shewn to have two Prerogatives, or extraordinary Natures, greatly conducing to the Abridgment of Enquiries; viz. one which fits them to be produced as Instances; and another for being proposed as Subjects of Enquiry. It is here shewn, therefore, what are the Instances, Observations, and Experiments, that have a prerogative Light; or excel others in bringing Enquiries to an Issue; so that a few of them may serve instead of a larger Number, and thus prevent the Labour of an extraordinary Search, and swelling the Bulk of the History. In the last Place 'tis shewn, what those Enquiries are which ought to lead the Way in the Business of Interpreting Nature; as having a Tendency and Disposition to give Light to all the rest, either on Account of their extraordinary Certainty, their universal Nature, or their Usefulness, and Necessity, to mechanic Arts, Inventions, and new Discoveries. And thus the Whole is closed with pointing out and directing to Leading Experiments, and Leading Enquiries, for a full Interpretation and Understanding of all Nature; and the Production of all necessary Works and Effects.

This is the general Scheme of the Novum Organum; in the Execution whereof, the Author seems to have proceeded upon the Strength and Direction of the following Aphorisms, laid down by himself, concerning the Qualifications of a just Interpreter of Nature.

P R E F A C E.

APHORISMS for a just INTERPRETATION
of NATURE.

APHORISM I.

AS Man is but the Servant and Interpreter of Nature, he can work and understand no farther, than he shall, either in Action or Contemplation ^a, observe of the Proceedings of Nature; to whose Laws he remains subject.

APHORISM II.

The Limits, therefore, of the human Power and Knowledge, lie in the Qualifications wherewith Man is by Nature endow'd, for acting and perceiving; and again in the State of Things presented to him: and beyond these Limits his Instruments and Abilities can never reach.

APHORISM III.

Mens Qualifications and Endowments, tho' of themselves but slender, and unequal to the Work; yet, when properly and regularly used and applied, are capable of bringing such Things before the Judgment, and into Practice, as lie extremely remote from the ordinary Sense and Action; and again of conquering greater Difficulties in Works and Obscurities in Science, than any one at present knows so much as to wish for ^b.

APHORISM IV.

As Truth is but one simple Thing; so likewise is the Interpretation of Nature: but the Senses are fallacious, the Mind unstable, and the Cause pressing; yet the Business of Interpretation is rather uncommon than difficult.

APHORISM V.

He who is not practis'd in doubting, but forward in asserting and laying down such Principles as he takes to be approved, granted, and manifest; and according to the establish'd Truth thereof, receives or rejects

^a *Viz.* In what we vulgarly call Theory and Practice.

^b We have many Instances hereof in Mathematicks, Mechanicks, Astronomy, Opticks, Acousticks, Chemistry, and particularly in the modern Mathematical Philosophy.

P R E F A C E.

333

rejects every thing, as squaring with, or proving contrary to them^a; is only fitted to mix and confound Things with Words, Reason with Madness, and the World with Fable and Fiction; but not to interpret the Works of Nature.

A P H O R I S M VI.

He who does not blend together, and bring into a Mass, all the vulgar Distinctions of Things, and their Names^b, cannot perceive the Unity of Nature, nor observe the true Lines of Things; and, of course, cannot interpret.

A P H O R I S M VII.

He who has not in the first Place, and above every thing else, thoroughly examined the Motions of the human Mind; and with the utmost Accuracy noted, and made a kind of Map of the Paths of Science, and the Seats of Error therein, will find all Things under a Mask, or as it were enchanted; and unless he breaks the Charm, can never interpret^c.

A P H O R I S M VIII.

He who only is vers'd in discovering the Causes of obvious and compounded Things, such as Flame, Dreams, Fevers, &c. but has no recourse to simple Natures; and first to those that are such in popular Esteem; then to those which are artificially reduced, and as it were sublim'd to a truer Simplicity; may perhaps, if he otherwise errs not, make some tolerable Additions (bordering upon Discoveries) to the Things already known: but will have no Success in conquering the inveterate and general Prejudices of the Age; and cannot be call'd an Interpreter^d.

A P H O R I S M

^a Is not this the Manner wherein Philosophers generally proceed?

^b Viz. He who does not obliterate, or as it were annihilate, in his Mind the vulgar Notions and Terms, which are seldom just, precise and adequate, cannot perceive the Harmony and Consent of Things; nor observe their true Differences, or Lines of Separation; after the Manner that one Country is distinguished and separated from another in Maps.

^c He who does not understand Mens Prejudices, Opinions, Kinds and Degrees of Knowledge, Errors, &c. can never remove, alter, improve, or redress them; and unless he finds a Way of entering and convincing the Mind of its Errors, false Notions, Superstitions, and Delusions, he can never greatly improve and increase the Mass of sound and serviceable Knowledge.

^d The modern Improvements in the Subject of *Light*, may illustrate this Aphorism: For till *Light* was analysed, or resolved, from its naturally compounded State, into simpler Parts, or Rays of different Colours; no very great Discovery was made therein. So that Sir *Isaac Newton*, in this respect, may be call'd the *Interpreter*; and be said to have conquer'd the Prejudices that formerly prevail'd about the Doctrine of *Light*.

P R E F A C E.

APHORISM IX.

He who would come duly prepared, and fitted, to the Business of Interpretation, must neither be a Follower of Novelty, Custom, nor Antiquity; nor indulge himself a Liberty of contradicting; nor servilely follow Authority. He must neither be hasty in affirming, nor loose and sceptical in doubting; but raise up Particulars to the Places assign'd them by their Degree of Evidence and Proof. His Hope must encourage him to labour, and not to rest; he must not judge of Things by their uncommon Nature, their Difficulty, or their high Character; but by their just Weight and Use. He must, in his own Particular, carry on his View with Concealment^a; and yet have a due Regard for Posterity. He must prudently observe the first Entrance of Errors into Truths, and of Truths into Errors; without despising or admiring any thing. He must understand his own Talents and Abilities, or the Advantages of his own Nature. He must comply with the Nature of others. He must, as with one Eye, survey the Natures of Things, and have the other turn'd towards human Uses^b. He must distinctly understand the mix'd Nature of Words; which is extremely capable both of prejudicing and assisting. He must lay it down to himself, that the Art of discovering will grow up, and improve, along with Discoveries themselves. He must not be vain either in delivering or concealing the Knowledge he has acquired; but ingenuous and prudent; and communicate his Inventions without Pride or Ill-nature: and this in a strong and lively Manner, well defended against the Injuries of Time, and fit for the Propagation of Knowledge, without occasioning Errors; and, which is the principal Thing of all, it must be such as may select and chuse for itself a prepared and suitable Reader^c.

APHORISM X.

The Interpreter thus qualified, should proceed in this Manner. He must first consider the State of Mankind; next remove the Obstacles in the Way of his Interpretation; and then, coming directly to the Work, prepare a History and regular Setts of Tables of Invention;
shew

^a The Author explains the Meaning hereof, so far as he thought necessary, under Part I. Sect. VII. of the following Piece.

^b Viz. The Uses of Life, and the Service of Mankind in general.

^c If the Reader, therefore, should be shocked, disgusted, or unentertained with the following Piece, he may please to examine himself, Whether he be of the Number of those for whom it was design'd.

shew the Uses thereof, their Relations, Dependencies, and Subserviency to each other. He must represent how little real and serviceable Knowledge Mankind is possess'd of; and how all just Enquiry into Nature has been neglected. He must use Choice and Judgment in singling out and giving the first Place to such Subjects of Enquiry, as are most fundamental or important; that is, such as have a principal Tendency to the Discovery of other Things, or else to supply the Necessities of Life. He must likewise observe the Prebeminency of Instances; which is a Thing that greatly conduces to shorten the Work. And when thus provided, he must again renew his Enquiries, draw out fresh Tables, and now, with a greater Ripeness of Knowledge, more successfully enter upon, and perfect the Business of Interpretation: which will thus become easy, and follow, as it were, spontaneously; so as in a manner to be seasonably anticipated by the Mind. And when he has done this, he will directly see and enumerate, in a pure and native Light, the true, eternal, and most simple Motions of Nature; from the regular and exact Progress whereof proceeds all that infinite Variety of the Universe. In the mean time, he must not, from the very Beginning of the Work, omit, with Assiduity, to observe and set down, many new and unknown Things, for the Service of Mankind; as it were in the Way of Interest, till they receive the Principal. And afterwards, being wholly intent upon the Discovery of human Uses^a, and the State of Things then present, he will regulate and dispose all in a different Manner for Practice; assigning to the most secret and hidden Natures^b, others that are explanatory thereof; and such as are superinducing to those that are most absent^c. And thus at length he will, like another Nature, form such general Axioms of all Knowledge, Works, and Effects, as shall rarely err; and if they should, these Errors will appear but as Monsters in Nature, and yet leave the Art, by which they were found, unviolated in its Prerogative.

*In this aphoristical Manner, the Author proceeds thro' the Whole of the following Piece; which is no more than a continued String of Aphorisms; or summary Expressions of pure Matter of Science, in
simple*

^a See above, Aph. IX.

^b Properties suppose.

^c Viz. Be enabled to give the Properties of one Body to another; or introduce Properties where they were not: As, to give an incombustible Property to Wood; Inflammability to Water; Transparency to Metals; Malleability to Glass; the Colour and Gravity of Gold to Silver, &c. which are at present esteem'd Things either impossible or impracticable.

P R E F A C E.

simple Language, without foreign Ornament; and upon the footing of competent Experience and Observation. Hence aphoristical Writings are rich and pregnant Things, capable of being unfolded, explained, illustrated, and deduced into great Variety. Yet an Aphorism differs from an Axiom; as a true and perfect Axiom is incapable of farther Improvement; but an Aphorism still improvable: So that Aphorisms are a kind of imperfect Axioms, that ought to point and lead up to the perfect. And as Aphorisms thus approach to Axioms; we should not despair of raising an Axiomatical Philosophy upon the Strength of the following Sett.



INTRO-



INTRODUCTION.

1. HEY who confidently or magisterially pronounce *State of the* of Nature, as of a Thing already discover'd, have *ancient Phi-* highly injured Philosophy and the Sciences; and had *losophies.* the Success, not only to enforce a Belief, but to stop farther Enquiry. Others, whether from an Aversion to the ancient Sophists, Instability of Mind, or too large a Measure of Knowledge, assert, that *nothing is knowable*, and produce no despicable Reasons for their Opinion; tho' they do not derive it from its true Principles: and being carried away with Zeal and Affectation, they have exceeded all Bounds. The ancient Greeks, whose Writings are lost, wisely held a middle Way, between the Arrogance of the former, and the Despondency of the latter: and tho' they were frequently complaining of the Difficulty of Enquiries, and the Darkness wherein Things are wrapp'd; yet they kept on their Course, tho' they champ'd the Bit; without losing Sight of Nature; as if resolved not to dispute, but to try whether any thing were knowable*. Yet even these, using only the Effort of the naked Understanding, did not apply the Rule; but placed all Things in Subtlety of Thought, and Fluctuation of the Mind.

2. The Thing we propose, is to settle the Degrees of Certainty; to *Design of the* guard the Sense by a kind of Reduction^b; generally to reject that Work *Work.* of the Mind which is consequent to Sense; and to open and prepare a new and certain Way for the Mind, from the immediate Perceptions of the Senses. And thus much was, doubtless, intended by those who have so highly magnified the Art of Logic: which plainly shews they sought for some Assistances to the Understanding; and held the natural Procedure, and spontaneous Motion of the Mind suspect. But this Remedy came too late, after the Mind was possessed, and polluted by Customs, Le-

* See hereafter, *Sett.* IV.

^b Viz. By contriving Ways of submitting Things, in a proper manner, to the Senses; that true Judgment may be formed of them, when thus again brought under View.

ctures, and Doctrines; and filled with vain *Idols**, or *false Notions*. Whence this Superinduction of Logic, far from correcting what was amiss, rather fix'd the Errors of the Mind, than open'd a Way to Truth. The only Remedy left is, therefore, to begin the whole Work of the Mind anew; and, from the very first, never leave it to itself; but keep it under perpetual Regulation, as if the Business were perform'd by a *Machine*^d. And indeed, if Men had set about mechanical Works, with their bare Hands, unassisted with Instruments; as they have ventured to set about intellectual Works, almost with the naked Powers of the Mind; they would have found themselves able to have effected very little, even tho' they combined their Forces. If some large Obelisk were to be raised; would it not seem a kind of Madness, for Men to set about it with their naked Hands? And would it not be greater Madness still to increase the Number of such naked Labourers, in Confidence of effecting the Thing? And were it not a farther Step in Lunacy, to pick out the weaker bodied, and use only the robust and strong; as if that would certainly do? But if, not content with this, recourse should be had to anointing the Limbs, according to the Art of the ancient Wrestlers; and then all begin afresh; would not this be raving, with Reason? Yet this is but like the wild and fruitless Procedure of Mankind in Intellectuals; whilst they expect great Things from *Multitude* and *Consent*; or the Excellence and Penetration of Capacity; or strengthen, as it were, the Sinews of the Mind with Logic. And yet, for all this absurd Bustle and Struggle, Men still continue to work with their naked Understandings. At the same time, it is evident, that in every great Work, which the Hand of Man performs, the Strength of each Person cannot be increased; nor that of all be made to act at once, without the Use of Instruments and Machines^e.

*Interferes not
with the An-
cients.*

3. Upon the whole, Men are here to be reminded of two Things; (1.) That it fortunately happens, to prevent all Controversy and Elation of Mind, that the Ancients will remain undisturb'd in the Honour and Reverence due to them; whilst we pursue our own Design, and reap the Fruits of our Moderation. For if we should pretend to produce any thing better than the Ancients, yet proceed in the same Way as they did; we could, by no Art of Words, prevent some apparent Rivalship in Capacity, or Ability: and however allowable this might be, as it is a Liberty they took before us; yet we should know the Inequality of our own Strength, and not stand the Comparison. But now, as we go upon opening a quite new Way for the Understanding, untried and unknown to the Ancients; the Case changes, and all Party and Contest drops.

(2.)

* See hereafter, *Seç. II. App. 37.*

^d Hence we may learn the Reason of the Title, *Novum Organum*; tho' doubtless the Author also intended some Allusion to the *Organon*, or Logick of *Aristotle*.

^e The Foundation of the *Novum Organum* seems laid in this Paragraph; so that if this be not found just, the Superstructure must fall of course.

(2.) That we are no way bent upon disturbing the present Philosophy, or any other that is, or shall appear, more perfect: the common System, and others of the same Kind, may continue, for us, to cherish Disputes, embellish Speeches, &c. the Philosophy we would introduce, will be of little Service in such Cases: nor is ours very obvious, and to be taken at once; nor tempting to the Understanding; nor suited to vulgar Capacities; but solely rests upon its Utility and Effects. Let there be, therefore, by joint *Philosophers reduced to two Tribes.* Consent, two Fountains, or Dispensations, of Doctrine; and two Tribes of Philosophers, by no means Enemies or Strangers, but Confederates and mutual Auxiliaries to each other: and let there be one Method of cultivating, and another of discovering the Sciences. And to those who find the former more agreeable, for the sake of Dispatch, or upon civil Accounts, or because the other Course is less suited to their Capacities, (as must needs be the Case with far the greater Number;) we wish Success in their Procedure; and they may obtain their Ends. But if any one has it at heart, not only to receive the Things hitherto discover'd, but to advance still farther; and not to conquer an Adversary by Disputation, but to conquer Nature by Works; not neatly to raise probable Conjectures, but to know Things of a certainty, and demonstratively; let him, as a true Son of the Sciences, join Issue with us, if he pleases: that, leaving the Entrance of Nature, which infinite Numbers have trod, we may, at length, pass into her *inner Courts*¹. To make our selves still more intelligible, we shall give Names to these two Methods of Procedure; and familiarly call the first the *Anticipation of the Mind*; and the other the *Interpretation of Nature*.

4. And now, we have only this Request to make; that as we have bestowed much Thought and Care², not only that what we offer should be true; but also, as much as is possible, that it should be accessible to the human Mind, tho' strangely beset and prepossessed; we entreat it, as a Piece of Justice at the Hands of Mankind, if they would judge of any thing we deliver, either from their own Sense, the Cloud of Authorities, or the Forms of Demonstration, which now prevail, as so many *judicial Laws*; that they do it not on the sudden, and without Attention; but first master the Subject; by degrees make Trial of the Way we chalk out; and accustom themselves to that Subtilty of Things, which is imprinted in Experience; and, lastly, that by due and seasonable Perfe-

Requisites to judging of the Work.

¹ Notwithstanding this Distinction, the Author has been suspected to oppose the Ancients: tho' his Design every where is to make use of all the Assistance they afford, fit for the Purpose; and to advance the Whole of Philosophy to a greater Perfection. But how few Helps and Materials, for this Purpose, are derivable from the Ancients, is another Consideration. See *Supplem. X.* and hereafter *Sett. IV.* See also hereafter, *App. 31.* &c.

² The Author wrote the following Piece twelve Times over, with his own Hand; making it a Rule to revise, correct, and alter it once a Year, till he brought it to the present degree of Perfection. And whoever desires to see how far it was, by this means, improved, may compare it with the *Cogitata & Visa*, published by Gruter; which was the rough Draught of the first Book only, of the *Novum Organum*; and sketched out, at least thirteen, if not many more, Years before the Publication of this Piece: for Sir *Tho. Bodley*, in the Year 1607, complains of the Author for having kept it so long in his Coffer.

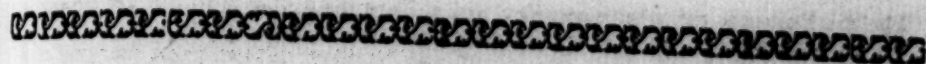
INTRODUCTION.

verance, they correct the ill Habits that closely adhere to the Mind: and when thus they begin to be themselves, let them use their own Judgment; and welcomeⁿ.

Tho' this Request might be more necessary, at the Time the Author made it; yet perhaps it is not still unreasonable: for, possibly, the generality, even of Philosophers, are not to this Day, sufficiently divested of Preoccupation, Party, and Prejudice, to form a true Judgment of what the Author wrote so long ago.



Novum



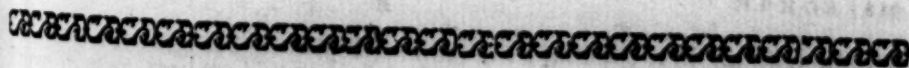
Novum Organum Scientiarum:

A

NEW MACHINE

FOR REBUILDING the

SCIENCES.



NEW MACHINES

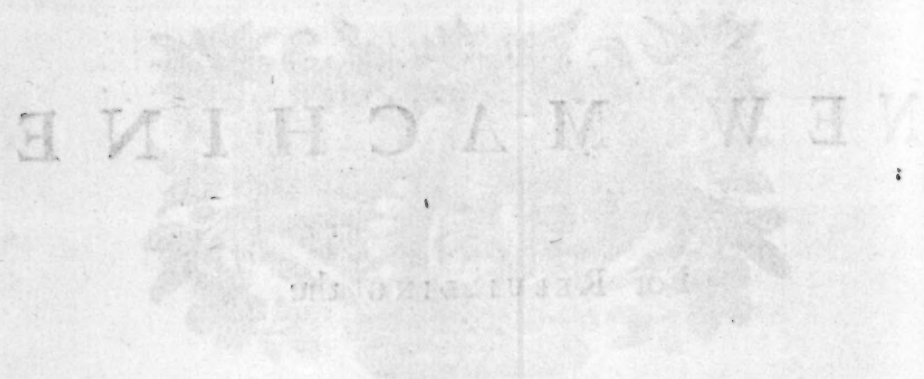
For the purpose of saving time and labor in the printing of books, the following machines have been invented and are now in use.

THE NEW MACHINES FOR THE PRINTING OF BOOKS

are now in use in the printing of books, and are the most perfect and efficient machines yet invented.

Notum Organum Scientiarum :

A



SCIENTIFIC

THE NEW MACHINES FOR THE PRINTING OF BOOKS

ft
no
di
pr

T
mo
and
Th
dra
"
"
"
expi



PART I.

SECT. I.

General APHORISMS for interpreting NATURE; and extending the Empire of Man, over the Creation.

APHORISM I.

1.  AN, who is the Servant and Interpreter of Nature, can *Man's Power,* act and understand no farther than he has, either in *how limited.* Operation, or in Contemplation, observed of the Method and Order of Nature ^a.

APHORISM II.

2. Neither the Hand without Instruments, nor the unassisted Under- *Man requires* standing, can do much; they both require Helps, to fit them for Bu- *Instruments.* siness: and as Instruments of the Hand, either serve to excite Motion, or direct it; so the Instruments of the Mind, either suggest to, or guard and preserve the *Understanding* ^b.

APHORISM

^a Human Knowledge is acquired by *Observation*, and *Experience*; or by conversing with the Things about us, thro' the Mediation of the Senses, and subsequent Reflexion: therefore, the more we observe and try; the more we learn and are enabled to perform. And thus Knowledge and Power go hand in hand: so that the way to increase in Power, is to increase in Knowledge. The Europeans exceed the savage *Indians* in Power, by having a superior Knowledge of *Arts*, *Arms*, &c. See *Aph. 3*.

^b This Aphorism in another Place is turn'd thus. "The naked and *unassisted Hand*, however strong and true, is adapted only to the Performance of a few easy Works; but when "assisted by Instruments, becomes able to perform abundance more, and of much greater difficulty: and the Case is exactly the same with the Mind." The Whole will be abundantly explained and illustrated by what follows. See also *Introduction*, §. 2 and 3.

APHORISM III.

Power and
Knowledge co-
incide.

3. The *Knowledge* and *Power* of Man are coincident: for whilst ignorant of Causes, he can produce no *Effects*: Nor is Nature to be conquer'd but by Submission^c. And that which in *Speculation* stands for the Cause; is what in *Practice* stands for the Rule^d.

APHORISM IV.

4. In Works, Man can do no more than put natural Bodies together, and take them afunder: all the rest is perform'd by the internal Operations of Nature.

APHORISM V.

Arts and Sci-
ences imper-
fect.

5. The *Mechanic*, the *Mathematician*, the *Physician*, the *Chemist*, and the *natural Magician*, are concern'd in the Works of Nature; but, all of them, at present, *superficially*, and to little purpose^e.

APHORISM VI.

6. 'Tis Madness, and a Contradiction, to expect that Things which were never yet perform'd, should be effected, except by Means hitherto untried.

APHORISM VII.

7. The Productions of the *Mind* and *Hand*, seem exceedingly numerous in *Books* and *Works*; yet all this Variety arises from the particular subtilizing

^c Vix. By condescending to enquire into, and observe her Methods of working; as a Servant who would learn of his Master. For no Power of Man can possibly break the Chain of natural Causes; so that the only Method whereby Men can rule Nature, must depend upon learning her Ways.

^d This Aphorism is otherwist expressed by the Author in another Place; thus. "The human Power has this for its *Object*; to impose or introduce any *Nature* upon a given *Base* of Matter, within the Condition of Possibility; and the *Object* of the human Knowledge is the Discovery of the Causes of an Effect assign'd, in any Subject. And these are two coincident Intentions: for what in Contemplation is assign'd as the Cause, is in Operation the Means of producing the Effect." And again, thus. "There is, in Fact, no difference betwixt a theoretical and practical Proposition: thus to assert that Light belongs not to the Nature of Heat; is the same as to assert, that in the Production of Heat there is no necessity for the producing of Light." This Matter also will be fully illustrated hereafter; tho' it be indeed self-evident, upon a little Attention.

^e This Aphorism is more fully deliver'd in another Place; thus. "The Knowledge of which Mankind are hitherto possess'd, does not reach to Certainty; and the Production of great Effects. Physicians pronounce many Diseases incurable; and frequently mistake and fail in the Cure of the rest: the Alchemist never relinquishes his Hopes: the Works of the natural Magician are unstable, and of little Advantage: the mechanic Arts derive no great Light from Philosophy; and but languidly prosecute Experiments in low and trivial Subjects; so that the Discoveries at present in use are extremely crude, and far from perfect."

Sect. I. APHORISMS for interpreting NATURE.

345

utilizing upon, and applying, a few known Things; and not from any Number of *Axioms*¹.

APHORISM VIII.

8. Nay, the Works hitherto discover'd, are owing rather to *Accident* and *Trial*, than the *Sciences*; which, as they now stand, are nothing but *Compilements* of Things found out before; and not *Methods of Enquiry*, or *Plans of new Works*.

APHORISM IX.

9. The Root of all the Mischief in the *Sciences*, is this; that *falsly magnifying and admiring the Powers of the Mind, we seek not its real Helps*.

APHORISM X.

10. The Subtilty of Nature, far exceeds the Subtilty of the Sense and Understanding; so that the sublime *Meditations, Speculations, and Reasonings* of Men, are but a kind of Madness; if a fit Person were to observe them².

APHORISM XI.

11. As the *Sciences* now in being, are useless in the Discovery of Works; *Logic* so is the present *Logic* in the Discovery of the *Sciences*³.

APHORISM XII.

12. The common *Logic* is better fitted to fix and establish Errors, which are founded in vulgar Notions, than for searching after Truth; so as to be more prejudicial than useful⁴.

APHORISM XIII.

13. *Syllogism* is not applied to the Principles of the *Sciences*; and 'tis *Syllogism* in vain applied to intermediate *Axioms*⁵; as being unequal to the Sub-

¹ Thus the numerous Books wrote upon Religions, Laws, Morality, &c. may be reduced back to a few Particulars, which gave them Origin; and the Arts of Glass, Medicine, the modern Art of War, &c. to the casual Observation of Ashes melted by Heat, the accidental Discovery of Simples, Gun-powder, &c. whereas had all these proceeded from the Light of *Axioms*; they would have proved much more perfect, serviceable, and advantageous: But the *Axioms* are wanting for this Purpose.

² This Aphorism deserves Attention. Certainly, upon examining, every Man may find his common Notions of Things very inadequate; or far from corresponding even with those he gains by conversing more familiarly and intimately with Nature. And yet, after a Life spent upon any particular Enquiry, in the common Method, there still usually remains some Subtilty of Nature behind, which we cannot catch; and are apt, perhaps very extravagantly, to guess at. And if this be the Case in sensible and material Things; what must our general Theories and Systems be?

³ This seems to have been fully shewn in the *de Augmentis Scientiarum*.

⁴ This Matter has also been discussed in the *de Augmentis Scientiarum*.

⁵ See below, *App. 19*.

tilty of Nature: and therefore catches the Assent; but lets Things themselves slip through¹.

APHORISM XIV.

14. *Syllogism* consists of Propositions, Propositions of Words, and Words are the Signs of Notions; therefore, if our Notions, the Basis of all, are confused, and over hastily taken from Things; nothing that is built upon them can be firm: whence our only Hope rests upon genuine *Induction*^m.

APHORISM XV.

Notions not
safely trusted.

15. No *Notion* can be safely trusted, either in *Logics* or *Physics*; not even those of *Substances*, *Qualities*, *Actions*, *Passions*, and *Existence*; much less those of *Gravity*, *Levity*, *Density*, *Tenuity*, *Moisture*, *Dryness*, *Generation*, *Corruption*, *Attraction*, *Avoidance*, *Element*, *Matter*, *Form*, &c. but all are phantastical, and ill definedⁿ.

APHORISM XVI.

16. The *Notions* of the lower Species, as of a *Man*, a *Dog*, a *Dove*; and the immediate Apprehensions of Sense^o, as *Heat*, *Cold*, *White*, *Black*, &c. do not greatly deceive us; tho' these also are sometimes greatly confounded by the flowing in of *Matter*, and the putting of Things together. And for all the rest, which Mankind have hitherto employ'd, they are mistaken; or not duly abstracted, and raised, from Things^p.

APHORISM XVII.

17. Nor is there less Licentiousness, or fewer Mistakes, in the raising of *Axioms*, than in the forming of *Notions*; and this even in Principles themselves, which depend upon the vulgar *Induction*^q: much more in the inferior *Axioms*, and *Propositions*, deduced by *Syllogism*.

APHORISM

¹ See the next Aphorism.

^m *Viz.* A competent Catalogue of *Instances*, on both Sides of the Question; so that when all the Exceptions are properly made, a sound, or at least a serviceable, Portion of Truth may be left, as an *Axiom*, behind. See *Aph.* 105, 106.

ⁿ Mr. *Locke's* Chapter of *Idea's*, in his Essay upon *Human Understanding*, is a kind of Comment upon this Aphorism.

^o Now commonly called *Sensations*.

^p See Mr. *Locke's* Essay upon *Human Understanding*.

^q The vulgar *Induction*, to explain it in a familiar manner, is that Method of arguing which Men use, when they say, *I'll give you an Instance*; and then produce a Case, or several Cases, wherein their Proposition holds. And in the same manner, the common *Logical Induction* proceeds upon an Enumeration of particular Instances, or Examples; but without a due Regard to those that may be produced on the contrary, or negative Side: so that this Induction is absolutely unsafe and trifling; as being liable to be set aside by the contradictory Instances, whenever they shall appear. And this we see frequently happens, both in Discourse and Writing. What the Author's Method of Induction is, may appear from the Note upon *Aph.* 14. above: but more fully hereafter, *Aph.* 105, 106. and in the Second Part of this Piece.

APHORISM XVIII.

18. All hitherto discover'd in the *Sciences*, falls nearly under vulgar Notions: but to proceed farther into Nature, 'tis requisite that both *Notions* and *Axioms* be form'd from Things, in a surer and more guarded Manner; and that a better and more certain Way of *working with the Understanding* be introduced.

APHORISM XIX.

19. There are two Ways of searching after, and discovering Truth: *Two Ways of discovering Truth.* the one, from Sense and Particulars, rises directly to the most general *Axioms*; and resting upon these Principles, and their unshaken Truth, finds out intermediate *Axioms*: and this is the Method in use. But the other raises *Axioms* from Sense and Particulars, by a continued gradual Ascent; till at last it arrives at the most general *Axioms*: which is the true Way; but hitherto untried^{*}.

APHORISM XX.

20. The Understanding, when left to itself, takes the first of these Ways; *The Action of the unassisted Understanding.* and prepares it in logical Order: for the Mind delights in springing up to the most general *Axioms*; that it may find rest. But after a short Stay here, it disdains Experience: and these Mischiefs are at length increased by *Logic*, for the Ostentation of Dispute^{*}.

APHORISM XXI.

21. The Understanding being left to itself, in a sober, patient, and sedate Genius; and especially if unprejudiced by any former Doctrine; *Its Action in a sober Genius.* will make some Attempt in the second or right Way; but to little Advantage: for unless regulated and assisted, the Understanding is here very unequal, and absolutely unfit to conquer the Obscurity of Things.

APHORISM XXII.

22. Both these Ways begin with Sense and Particulars; and end in the most general Principles: but they otherwise differ immensely. *The difference of the two Ways of discovering Truth.* The one lightly passes over Experience and Particulars; which the other duly and orderly dwells on: the former constitutes certain abstract and

^{*} And upon this Way it is that the Author rests his greatest Hopes of improving Philosophy and the Sciences. See hereafter, *App.* 105.

^{*} There is scarce a more pernicious Thing to Philosophy, than the common Practice of disputing with Heat, and a hasty turbulent Use of Syllogism. These kind of captious and sophistical Contests are as the Fevers of the Reason.

useless Generals from the Beginning; but the latter rises gradually to such as Nature really acknowledges¹.

APHORISM XXIII.

*False Images
of the Mind.*

23. There is a wide Difference betwixt the *Idols of the human Mind*, and the *Ideas of the divine Mind*: that is, betwixt certain vain Conceits, and the real Characters and Impressions stamp'd upon the Creatures, as they are found².

APHORISM XXIV.

*Axioms raised
by Arguments
useless in
Works.*

24. 'Tis impossible that *Axioms*, raised by Argumentation, should be useful in discovering new Works; because the Subtilty of Nature vastly exceeds the Subtilty of Argument³: But Axioms, duly and methodically drawn from Particulars, will again easily point out new Particulars; and so render the Sciences active⁴.

APHORISM XXV.

*The common
Axioms, how
form'd.*

25. The *Axioms* in use, being derived from slender Experience, and a few obvious Particulars, are generally applied in a corresponding manner: No wonder, therefore, they lead us not to new Particulars. And if any Instance unobserved before happens to turn up; the *Axiom* is preserved, by some trifling distinction, where it ought rather to be corrected⁵.

APHORISM XXVI.

*The Anticipation,
and Interpretation of
Nature, what.*

26. The natural human Reasoning, we, for the Sake of Clearness, call the *Anticipation of Nature*; as being a rash and hasty Thing⁶: and the Reason duly exercised upon Objects, we call the *Interpretation of Nature*.

APHORISM XXVII.

*The Force of
Anticipation.*

27. This *Anticipation* has Force enough to procure Consent⁷; for if all Mankind were mad, in one and the same manner, they might still agree among themselves.

APHORISM

¹ That is, such as Men may safely proceed upon, in producing Effects: for being drawn from Nature, they readily find the Way to Nature again; and in this Sense are acknowledged by her, as her own.

² See above, *Aph.* 10. Astronomers distinguish betwixt the real and apparent Motions of the Heavens; the one being respective to Man, and the other to the Truth; or supposing an Observer seated in the Centre of the System. This may, perhaps, illustrate the present Aphorism.

³ To depend upon Argumentation, or the common Method of Reasoning, in Physical Enquiries, is working only with Words and Thoughts, where manual Operations, and Experiments are required.

⁴ See above, *Aph.* 22.

⁵ Has not this been generally the Case, from the Time of *Aristotle* to the present?

⁶ See above, *Aph.* 20. See also *Introduction*, § 3.

⁷ Is it not also the chief Spring of human Actions?

APHORISM XXVIII.

28. *Anticipations*, also, have a much greater Power to entrap the Assent, than *Interpretations*; because, being collected from a few familiar Particulars, they immediately strike the Mind; and fill the Imagination: whereas *Interpretations*, being separately collected from very various and very distant Things, cannot suddenly affect the Mind; whence, of necessity, in difficult and paradoxical Matters, these *Interpretations* appear almost like MYSTERIES OF FAITH^b.

APHORISM XXIX.

29. In the Sciences founded on Opinion and Decree; *Anticipations* and *The proper Use of Anticipation and Logic.* *Logic* are of great Service; where not Things, but the Assent is to be brought under Subjection^c.

APHORISM XXX.

30. But tho' the Labours and Capacities of the Men in all Ages were united and continued, they could make no considerable Progress in the Sciences, by *Anticipation*; because the radical Errors, in the first Concoction of the Mind, are not to be cured by the Excellence of any succeeding Talents and Remedies^d.

APHORISM XXXI.

31. And 'tis in vain to expect any great Advancement of the Sciences, by superinducing or engrafting new Inventions upon old: The Restoration must be begun from the very Foundation; unless Men chuse to move continually in a Circle, without considerably advancing.

APHORISM XXXII.

32. All the ancient Authors will still remain possessed of their Honour; and unrival'd in their Genius and Ability: as we only point out a new Path, without censuring their Proceedings.

APHORISM XXXIII.

33. No true Judgment can by *Anticipation* be form'd of this new Method of ours; nor of the Things it discovers: for they cannot, in Justice, be tried

^b This Aphorism seems capital, or almost Axiomatical: 'tis made great use of hereafter; and requires to be well remember'd.

^c See the *de Augm. Scient.* Sect. XVIII. See also the Fable of *Orpheus*, explained in the *Sapientia Veterum*, Sect. I. Fab. 3.

^d Let this Aphorism be well consider'd; and, if found just, remember'd.

tried by the Method of Reasoning at present used ; which is itself called in Question ^a.

APHORISM XXXIV.

34. Nor is it an easy Matter to deliver, or explain, what we have to produce ; because Things new in themselves will still be understood from their relation to the old ^b.

APHORISM XXXV.

Confutations, where of no Service.

35. *Confutations* are of no Service, where Men differ about Principles, Notions, and the Forms of Demonstration ^c : and our Desire is not Victory ; but only to find the Minds of Men prepared, and capable of receiving what we offer.

APHORISM XXXVI.

The Course observed by the Author.

36. We have but one simple Way left us ; and that is leading Mankind to Particulars ; their Series, and their Orders : whilst they prevail upon themselves to forsake their *Notions* for a Time ; and begin an Acquaintance with Things ^d.

APHORISM XXXVII.

37. Our Method has some Resemblance with that of the *Sceptics*, at the Entrance ; but differs widely from it, and becomes opposite to it, in the End. They simply assert, that nothing is knowable ; and we say, that much cannot be known of Nature, in the common Way : but then they destroy the Authority of the Sense and Understanding ; whereas we supply them both with Helps ^e.

^a The common Talent has, however, been employ'd upon this Performance ; and some other Parts of the *Instauration*. There are remarkable Instances of it in *Alexander Ross*, Dr. *Stubbs*, and certain *French* Authors. Sir *Tho. Bodley's* Letter to the Author, relating to the *Cogitata & Visa*, is also a Thing of this Kind, that may well deserve to be read, in order to keep the Mind from inclining too much to Novelty. See *Vol. I. Supplem. V. Sect. II.*

^b See hereafter, *Apb. 109.*

^c Yet are not most *Confutations* of this Kind ?

^d The Things here intended, the Author proposed to select with Judgment ; as they should appear most useful in themselves ; fittest for raising of Axioms ; enriching the Understanding, &c. and to range them in some proper Order, or in the Form of regular Tables ; that the Mind might act to Advantage upon them, without Distraction or Confusion. This he principally designed in the *Scala Intellectus* : and his *History of Life and Death*, and *History of Winds*, are capital Instances of the Kind.

^e This will be explained and illustrated, by a Variety of Examples, in the Second Part of the Work.

S E C T. II.

Of the false Images, or Idols, of the
M I N D.

APHORISM XXXVIII.

1. **T**HE *Idols*¹, and false Notions of the Mind, take such Root *Idols, what.* therein, and so possess it, that Truth can hardly find Entrance: and even when it is enter'd, these will again rise up, and grow troublesome, in the rebuilding of the Sciences; unless Men guard against them, with all possible Diligence^k.

APHORISM XXXIX.

2. There are four Kinds of *Idols* that possess the Mind of Man. In *Their Kinds.* order to be the better understood, we will assign Names to them; and call the first Kind, *Idols of the Tribe*; the second, *Idols of the Den*; the third, *Idols of the Market*; and the fourth, *Idols of the Theatre*.

APHORISM XL.

3. The raising of Notions and Axioms by *legitimate Induction*¹, is doubtless the proper Remedy for removing and driving out the Idols of the Mind; yet the *Indication of Idols*^m is a thing of great Use: the Doctrine of them being to the *Interpretation of Nature*, what the Doctrine of the Confutation of *Sophisms* is to the common *Logic*.

APHORISM XLI.

4. *Idols of the Tribe* have their Foundation in human Nature, and the *Idols of the* whole Tribe or Race of Mankind: for it is a false Assertion, that the *Tribe, what.* human

¹ The Author here seems to have made a happy Choice of the Word *Idol*; which elegantly distinguishes false Science from true: as erroneous Knowledge is a kind of Idolatry; or a Worship paid to false Gods, which is only due to the true One.

² The Doctrine of *Idols* has been already open'd in the *de Augment. Scientiar.* Sect. XIV.

^k See above, *App.* 14.

^m *Viz.* The discovering or pointing of them out.

human Sense is the Measure of Things; since all Perceptions, both of the Sense and Mind, are with relation to Man, and not with relation to the Universe^a. But the human Understanding is like an unequal Mirror to the Rays of Things; which, mixing its own Nature with the Natures of Things, distorts and perverts them^o.

APHORISM XLII.

Idols of the Den, what.

5. *Idols of the Den*, are the Idols of every Man in particular^p; for, besides the general Aberrations of human Nature, we every one of us have our peculiar *Den* or *Cavern*; which refracts and corrupts the Light of Nature: either because every Man has his respective Temper, Education, Acquaintance, Course of Reading, and Authorities: or because of the Differences of Impressions, as they happen in a Mind prejudiced or prepossessed; or in one that is calm and equal, &c. So that the human Spirit, according to its Disposition in Individuals, is an uncertain, very disorderly, and almost accidental thing. Whence *Heracitus* well observes, that Men seek the Sciences in the lesser Worlds; and not in the great or common one^q.

APHORISM XLIII.

Idols of the Market, what.

6. There are also *Idols* that have their Rise, as it were, from Compact, and the Association of Mankind; which, on Account of the Commerce and Dealings that Men have with one another, we call *Idols of the Market*. For Men associate by Discourse; but Words are imposed according to the Capacity of the Vulgar: whence a false and improper Imposition of Words strangely possesses the Understanding. Nor do the Definitions and Explanations, wherewith Men of Learning, in some Cases, defend and vindicate themselves, any way repair the Injury: for Words absolutely force the Understanding, put all Things in Confusion, and lead Men away to idle Controversies and Subtleties, without Number^r.

APHORISM XLIV.

Idols of the Theatre, what.

7. Lastly, there are *Idols* which have got into the human Mind, from the different Tenets of Philosophers; and the perverted Laws of Demonstration.

^a Philosophers should, if possible, conceive of Things as they are Parts of the Universe; and as they have their Office and Use therein: but Men generally consider Things only as they have some particular relation to the Sense; which cannot possibly discover the systematical or cosimical Qualities and Uses of Things.

^o See above, *Aph.* 23. and hereafter, *Aph.* 45.

^p The Author, in another Place, considers this kind of Idol, as every Man's particular *Demon*, or seducing Familiar; and again, he considers every Man's Mind as a Glass, with its Surface differently cut, so as differently to receive, reflect, and refract the Rays of Light that fall upon it.

^q See the *de Augm. Scient.* Sect. X.

^r See Mr. *Locke's* Essay upon *Human Understanding*; and the Author's *de Augm. Scient.* Sect. XVI, &c. particularly see below, *Aph.* 59.

stration. And these we denominate *Idols of the Theatre*; because all the Philosophies that have been hitherto invented or received, are but as so many Stage-Plays, written or acted; as having shewn nothing but fictitious and theatrical Worlds. Nor is this said only of the ancient or present Sects and Philosophies; for numberless other Fables, of the like Kind, may be still invented and dress'd up; since quite different Errors will proceed from almost the same common Causes. Nor, again, do we mean it only of general Philosophies; but likewise of numerous *Principles* and *Axioms* of the Sciences, which have prevailed thro' Tradition, Belief, and Neglect. But these several Kinds of *Idols* must be more fully and distinctly shewn, that the Mind may be upon its Guard against them.

APHORISM XLV.

8. The Mind has this Property, that it readily supposes a greater Order and Conformity in Things, than it finds: and tho' many Things in Nature are singular, and extremely dissimilar; yet the Mind is still imagining Parallels, Correspondencies, and Relations between them; which have no Existence. Hence the Fiction, that all the celestiall Bodies moved in perfect Circles; hence the fictitious Element of Fire, with its Orb, was added to the three sensible Elements, to make them four; and such kind of Dreams. Nor does this Folly prevail only in Tenets, but also in simple Notions.

The particular Idols of the Tribe, viz. (1.) From imaginary Relations.

APHORISM XLVI.

9. When the Mind is once pleased with certain Things, it draws all others to consent, and go along with them: and tho' the Power and Number of Instances, that make for the contrary, are greater; yet it either attends not to them, or despises them; or else removes and rejects them, by a Distinction; with a strong and pernicious Prejudice, to maintain the Authority of its first Choice unviolated. And hence, in most Cases of Superstition; as of Astrology, Dreams, Omens,* Judgments, &c. those who find Pleasure in such kind of Vanities, always observe where the Event answers; but slight and pass by the Instances where it fails; which are much the more frequent. This Mischief diffuses itself still more subtilly in Philosophies and the Sciences; where that which has once pleased infects and subdues all other Things, tho' much more substantial and valuable than itself. And tho' the Mind were free from this Delight and Vanity; yet it has the peculiar and constant Error of being more moved and excited by Affirmatives, than by Negatives: whereas it should duly and equally yield to both. But, on the contrary, in the raising of true *Axioms*, negative Instances have the greatest Force*.

(2.) From Distortions.

* As will be more fully shewn hereafter. See Part II. Sect. II.

APHORISM XLVII.

(3.) *Undue
Motions of the
Understanding.*

10. The human Intellect is most moved by those Things that strike and enter it all at once; so as to fill and swell the Imagination: but for the rest, it feigns and supposes them, after a certain imperceptible manner, to be like those few that possess the Mind: whilst the Understanding is quite slow, and unfit to pass so readily to remote and dissimilar Instances, whereby *Axioms* are tried, as it were, in the Fire¹; unless the Task be imposed upon it by severe Laws, and a potent Authority.

APHORISM XLVIII.

(4.) *Reckless
Appetite.*

11. The human Understanding shoots itself out, and cannot rest; but still goes on, tho' to no purpose. Thus 'tis inconceivable there should be any Bounds to the Universe; yet it constantly, and, as it were, necessarily recurs, that there must be something farther. So, again, it cannot be conceived how Eternity should have flow'd to the present Time: and there is the like Subtlety as to the infinite Divisibility of Lines, &c. all arising from the Weakness of human Thought. But this Impotence of the Mind proves more pernicious in the Discovery of *Causes*: for altho' the highest *Universals*, in Nature, ought to be positive Things; because they are found, and cannot be made; yet the Understanding, not knowing how to stop, is still desirous of greater Satisfaction; and endeavouring to stretch farther, lights upon *final Causes*; which are plainly of the Nature of Man, rather than of the Nature of the Universe². And from this Fountain Philosophy has been strangely corrupted: For it is as senseless, and unphilosophical, to expect Causes in the most general Cases, as not to require them in such as are subordinate³.

APHORISM XLIX.

(5.) *Impure
Light of the
Understanding.*

12. The Light of the Understanding is not a dry or pure Light, but drench'd in the Will and Affections; and the Intellect forms the Sciences accordingly: for what Men desire should be true, they are most inclined to believe. The Understanding, therefore, rejects Things difficult, as being impatient of Enquiry; Things just and solid, because they limit Hope; and the deeper Mysteries of Nature, thro' Superstition: it rejects the Light of Experience, thro' Pride and Haughtiness; as disdaining the Mind should be meanly and waverily employ'd: it excludes Paradoxes, for fear of the Vulgar. And thus the Affections tinge and infect the Understanding, numberless Ways; and sometimes imperceptibly.

APHORISM

¹ See above, *Señ. I. Aph. 14.* and hereafter, *Part II. Señ. II.*

² For *final Causes* are only expected to be such as satisfy the Mind.

³ See the *de Augm. Scientiar.* *Señ. V.* See also hereafter, *Part II. Señ. II.*

APHORISM L.

13. But much the greatest Impediment and Deviation of the Under- (6.) *Defects in the Senses.*
standing, proceeds from the Dullness, Incompetency, and Fallacies of the Senses; whence the Things that strike the Sense, unjustly over-balance those that do not strike it immediately: So that Contemplation usually ends with Sight; and little or no Observation is made of Things invisible. And hence all the Operations of the Spirits, included in tangible Bodies, all subtle Organizations, and the Motions of the Parts, are unknown to Mankind: and yet, unless these are discover'd and brought to Light, nothing very considerable can be done in Nature, with regard to Works^a. Nay, the Properties of the common Air, and numerous Bodies of greater Subtlety than that, remain almost unknown: For Sense, of itself, is a weak and erroneous Thing. Nor can Instruments, for improving and sharpening the Senses, be here of any great Service: all true Interpretations of Nature being made by proper and apposite Instances and Experiments; wherein Sense judges of the Experiment only; and the Experiment judges of Nature, and the Fact^b.

APHORISM LI.

14. The Understanding is, by reason of its own Nature, carried on (7.) *And Fondness for Abstractions.*
to Abstraction; and fancies those Things to be constant, which are wavering: but it is better to dissect Nature, than to abstract her^a; as was practised by the School of *Democritus*; which went farther into Nature, than any of the rest. And as Matter is principally to be consider'd in all its Schemes and Organizations; so likewise are pure Action, and the Laws of Action, or Motion: but for the *Aristotelian Forms*, they are Idols, or Figments of the Mind; unless we call the Laws of Motion, Forms^a.

APHORISM LII.

15. And this kind of Idols are what we term Idols of the Tribe: which have their Origin, either from (1.) the Uniformity of the human Spi-

^a See the *Sylva Sylvarum*, under the Articles *Imagination*, *Nature*, *Spirits*, and *Sympathy*. Mere gross Matter is a dull unactive Thing; they are Motions, and subtle Matters in Motion, that perform the chief Operations of Nature.

^b See above, *Aph.* 24, and hereafter, *Aph.* 70. See also *Vol. I. p. 12.* where this Matter is farther explained; but the full Illustration and Prosecution of it comes in the Second Part of the present Work.

^c That is, by making of Experiments, rather than by Contemplation, and Reasoning upon Notions, without the proper Facts.

^d This is meant of *abstract Forms*; but for *physical Forms*, or the essential, and efficient Cause of the peculiar Properties of Things, it is the principal Design of the Second Part of the present Work, to shew how they may be discover'd. See *Aph.* 17. of that Part. See also *Augment. Scientiar.* Sect. V.

rit^b; (2.) its Prepossession^c; (3.) its Narrowness^d; (4.) its restless Motion^e; (5.) The Tincture of the Affections^f; (6.) the Incompetency of the Senses^g; or (7.) the Manner of the Impression^h.

APHORISM LIII.

The particular
Idols of the
Den.

16. *Idols of the Den* take their Rise from the peculiar Nature of every particular Person; both with regard to Soul and Body: as also from Education, Custom, and Accidents. This kind is various and manifold; but we will touch upon such as require the greatest Caution, and have the greatest Force to pollute the Understanding.

APHORISM LIV.

(1.) From Af-
fection to par-
ticular Stu-
dies.

17. Men are fond of particular Sciences and Studies; either because they believe themselves the Authors and Inventors thereof; or because they have bestow'd much Pains upon them; and principally applied themselves thereto. And such Men as these, if they afterwards take to Philosophy and universal Contemplations, generally wrest and corrupt them with their former Conceits: of which we have a signal Example in *Aristotle*; who made his Natural Philosophy such an absolute Slave to his Logic, as render'd it contentious, and, in a manner, useless. The Tribe of Chemists, from a few Experiments of the Furnace, have run up a phantastical Philosophy, of very small Extent. And so Dr. *Gilbert*, after he had, with immense Labour, prosecuted his magnetical Studies, presently invented a Philosophy agreeable to his own Notionⁱ.

APHORISM LV.

(2.) The prin-
cipal Differ-
ence of Ca-
pacities.

18. The great and radical Difference of Capacities, as to Philosophy and the Sciences, lies here; that some are stronger and fitter to observe the Differences of Things; and others to observe their Correspondencies. For a steady and sharp Genius, can fix its Contemplations; and dwell, and fasten upon all the Subtilty of Differences: whilst a sublime and ready Genius perceives, and compares, the smallest and most general Agreements of Things. But both Kinds easily fall into Excess; 'by grasping either at the dividing Scale, or Shadows of Things.

APHORISM

^b See above, *Aph.* 45.

^c See *Aph.* 46.

^d See *Aph.* 47.

^e See *Aph.* 48.

^f See *Aph.* 49.

^g See *Aph.* 50.

^h See *Aph.* 51.

ⁱ Thus we see of later Date, when Mathematicians apply to Physicks, Medicine, Chemistry, &c. they render them all mathematical; when Chemists apply to Physicks, Medicine, &c. they render them chemical: so when Divines apply to Philosophy, they often render it scriptural, &c. See below, *Aph.* 65.

APHORISM LVI.

19. Some Men of Genius are wrapp'd up in the Admiration of Antiquity; ^{(3.) Affectation of Antiquity, or Novelty.} others spend themselves in a Fondness for Novelty; and few are so temper'd as to hold a Mean: but either quarrel with what was justly laid down by the Ancients; or despise what is justly advanced by the Moderns. And this is highly prejudicial to Philosophy and the Sciences; as being rather an Affectation of *Antiquity*, or *Novelty*, than any true Judgment: for Truth is not to be derived from any Felicity of Times, which is an uncertain Thing; but from the Light of Nature and Experience, which is eternal. These Affectations, therefore, are to be laid aside; and Care taken, that the Understanding be not hurried by them, into Consent^k.

APHORISM LVII.

20. To contemplate Nature and Bodies, in their Simplicity, breaks ^{(4.) And ill Choice of Objects.} and grinds the Understanding; and, to consider them in their Compositions and Configurations, blunts and relaxes it: as appears plainly, upon comparing the School of *Leucippus* and *Democritus* with the other Philosophies. For the former is so taken up with the Particles of Things, as almost to neglect their Structure; whilst the others view the Fabrication of Things with such Astonishment, as not to enter into the Simplicity of Nature. Both these Contemplations, therefore, are to be taken up by Turns; that the Understanding may at once be render'd more piercing and capacious; and the Inconveniences above-mention'd, with the *Idols* thence arising, be prevented^l.

APHORISM LVIII.

21. And, in this manner, let *contemplative Prudence* proceed, in chasing and dislodging the *Idols of the Den*; which principally have their ^{The Rise of the Idols of the Den.} Rise, (1.) from Prevalency; (2.) the Excess of Composition, and Division; (3.) Affectations for Times; or (4.) from too great, and too small a Size of Objects^m. And, in general, whoever studies the Nature of Things, should hold for suspect, whatever powerfully strikes and detains the Mind; and use so much the greater Caution to preserve his Understanding pure and equable, in such kind of Tenets.

APHORISM

^k How much regard has been had to this Aphorism, in the late Contests for and against the Superiority of ancient and modern Learning?

^l How the Author practis'd this Rule himself, appears from his *Sylva Sylvarum*, Histories of Winds, Life and Death, &c.

^m See App. 54, 55, 56, 57.

APHORISM LIX.

*Idols of the
Market, from
Words.*

22. But none are so troublesome as the *Idols of the Market*; which insinuate themselves into the Mind, from the Association of Words and Terms. For tho' Men believe that their Reason governs Words; it also happens, that Words retort, and reflect their Force upon the Understanding: whence Philosophy and the Sciences have been render'd sophistical, and unactive. Words are generally imposed according to vulgar Conceptions; and divide Things by Lines^a that are most apparent to the Understanding of the Multitude: And when a more acute Understanding, or a more careful Observation, would remove these Lines, to place them according to Nature; Words cry out, and forbid it. And hence it happens, that great and serious Disputes of learned Men, frequently terminate in Controversies about Words and Terms: which it were better to begin with, according to the prudent Method of the Mathematicians, and reduce them to Order by Definitions. But in natural and material Things, even these Definitions cannot remedy the Evil; because Definitions themselves consist of Words; and Words generate Words: so that, of necessity, recourse must be had to particular *Instances*, their Series, and Orders; as we shall shew, when we come to the Manner of raising *Notions*, and *Axioms*^b.

APHORISM LX.

*Are of two
kinds; viz.
Names of
Things not
existing.*

23. The *Idols* which Words impose upon the Understanding, are of two Kinds; as being either the Names of Things that have no Existence; or the Names of Things that do exist; but Names confused, ill defined, and rashly and irregularly abstracted from Things. Of the former Kind are such as *Fortune*, the *Primum Mobile*, the *Orbs* of the *Planets*, the *Element of Fire*, and the like Figments; which arise from imaginary and false Theories. For as there are Things that, thro' want of being observed, remain without Names; so there are Names coined upon phantastical Conceits, and have no Things corresponding to them. *Idols* of this Kind are dislodged by a constant rejection and repeal of Theories, and phantastical *Notions*^c.

*And Words
wrong form'd
from Things.*

24. But the other Kind, raised by a wrong and unskilful Abstraction, is intricate and deep rooted. For Example: let us choose any Word, as the word *Moisture*, for instance, to try how far the Things agree which are signified by it; and we shall find it no other than a confused Mark

^a Differences, or Distinctions.

^b See Part II. Sect. I. See also the *de Augment. Scient.* Sect. XV. and XVII.

^c See Mr. Locke's *Essay upon Human Understanding*, Chap. of Words, See also hereafter App. 64, &c.

of different Actions, that are inconstant and irreducible to one another. For *Moisture* signifies, (1.) that which can easily diffuse itself round another Body; (2.) that which is indeterminable of itself, and cannot fix; (3.) that which yields easily every way; (4.) that which readily divides, and scatters itself; (5.) that which easily unites with itself, and collects together; (6.) that which easily flows, and is easily put in Motion; (7.) that which readily sticks to another Body, and wets it; (8.) that which is easily melted, or reduced from a Solid to a Liquid. And therefore, when this Term comes to be published and imposed; with an Exception of some of the Significations, *Flame* will be moist; with the Exception of others, *Air* is not moist; and, again, with some other Exceptions, fine *Powders* and *Glass* are moist. Whence it easily appears that this Notion is inconsiderately taken from Water only, and some other common and obvious Liquors; and not duly verified⁹.

25 There are also certain Degrees of Error and Depravity in Words. *Depravities in Words.* The least faulty Kind, is that of the Names of Substances; especially the lower Species, which are well deduced; for the Notions of *Chalk* and *Clay* are just: but the Notion of *Earth* inadequate. The Tribe of Actions is more faulty; such as *Generation*, *Corruption*, and *Alteration*: but the Notions of Qualities, except the immediate Objects of Sense, are the most depraved; as, *Gravity*, *Levity*, *Tenuity*, *Density*, &c. Yet some of these Notions must, of necessity, be juster than others, in all the Kinds; according to the Number of Instances that have fallen under the Senses¹.

APHORISM LXI.

26. But for the *Idols of the Theatre*, they are neither innate, nor secretly insinuated into the Understanding; but plainly palm'd upon it; *Idols of the Theatre palm'd upon the Mind.* and received from fabulous Theories, and the perverted Laws of Demonstration. To undertake a Confutation of these, is by no means congruous with what we have already advanced²: for where neither Principles nor Demonstrations are agreed upon, there can be no arguing. And this happens fortunately, to leave the Ancients possess'd of their Glory: we can detract nothing from them; whilst the Question is only concerning the Way³. And a Cripple in the right Way may beat a Racer in the wrong one. Nay, the fleetest and better the Racer is, who has once miss'd

¹ A Language formed and verified after the manner here indicated, is greatly wanting in Philosophy; and perhaps cannot be compleated, till Philosophy itself is perfected.

² Whence it is plain, that a just Language cannot be formed without a competent Knowledge of Philosophy.

³ See above, App. 35.

⁴ The Author is extremely apprehensive of being suspected to rival the Ancients; which apprehension, if he had not well guarded against it, might have prejudiced his whole Design: indeed it in some measure did; and still continues to do with many.

APHORISM LIX.

*Idols of the
Market, from
Words.*

22. But none are so troublesome as the *Idols of the Market*; which insinuate themselves into the Mind, from the Association of Words and Terms. For tho' Men believe that their Reason governs Words; it also happens, that Words retort, and reflect their Force upon the Understanding: whence Philosophy and the Sciences have been render'd sophistical, and unactive. Words are generally imposed according to vulgar Conceptions; and divide Things by Lines^a that are most apparent to the Understanding of the Multitude: And when a more acute Understanding, or a more careful Observation, would remove these Lines, to place them according to Nature; Words cry out, and forbid it. And hence it happens, that great and serious Disputes of learned Men, frequently terminate in Controversies about Words and Terms: which it were better to begin with, according to the prudent Method of the Mathematicians, and reduce them to Order by Definitions. But in natural and material Things, even these Definitions cannot remedy the Evil; because Definitions themselves consist of Words; and Words generate Words: so that, of necessity, recourse must be had to particular *Instances*, their *Series*, and *Orders*; as we shall shew, when we come to the Manner of raising *Notions*, and *Axioms*^c.

APHORISM LX.

*Are of two
kinds; viz.
Names of
Things not
existing.*

23. The *Idols* which Words impose upon the Understanding, are of two Kinds; as being either the Names of Things that have no Existence; or the Names of Things that do exist; but Names confused, ill defined, and rashly and irregularly abstracted from Things. Of the former Kind are such as *Fortune*, the *Primum Mobile*, the *Orbs* of the *Planets*, the *Element of Fire*, and the like Figments; which arise from imaginary and false Theories. For as there are Things that, thro' want of being observed, remain without Names; so there are Names coined upon phantastical Conceits, and have no Things corresponding to them. *Idols* of this Kind are dislodged by a constant rejection and repeal of Theories, and phantastical *Notions*^b.

*And Words
wrong form'd
from Things.*

24. But the other Kind, raised by a wrong and unskilful Abstraction, is intricate and deep rooted. For Example: let us choose any Word, as the word *Moisture*, for instance, to try how far the Things agree which are signified by it; and we shall find it no other than a confused Mark
of

^a Differences, or Distinctions.

^b See Part II. Sect. I. See also the *de Augment. Scient.* Sect. XV. and XVII.

^c See Mr. Locke's *Essay upon Human Understanding*, Chap. of Words, See also hereafter, Aph. 64, &c.

of different Actions, that are inconstant and irreducible to one another. For *Moisture* signifies, (1.) that which can easily diffuse itself round another Body; (2.) that which is indeterminable of itself, and cannot fix; (3.) that which yields easily every way; (4.) that which readily divides, and scatters itself; (5.) that which easily unites with itself, and collects together; (6.) that which easily flows, and is easily put in Motion; (7.) that which readily sticks to another Body, and wets it; (8.) that which is easily melted, or reduced from a Solid to a Liquid. And therefore, when this Term comes to be published and imposed; with an Exception of some of the Significations, *Flame* will be moist; with the Exception of others, *Air* is not moist; and, again, with some other Exceptions, fine *Powders* and *Glasses* are moist. Whence it easily appears that this Notion is inconsiderately taken from Water only, and some other common and obvious Liquors; and not duly verified^a.

25 There are also certain Degrees of Error and Depravity in Words. *Depravities in Words.* The least faulty Kind, is that of the Names of Substances; especially the lower Species, which are well deduced; for the Notions of *Chalk* and *Clay* are just: but the Notion of *Earth* inadequate. The Tribe of Actions is more faulty; such as *Generation*, *Corruption*, and *Alteration*: but the Notions of Qualities, except the immediate Objects of Sense, are the most depraved; as, *Gravity*, *Levity*, *Tenuity*, *Density*, &c. Yet some of these Notions must, of necessity, be juster than others, in all the Kinds; according to the Number of Instances that have fallen under the Senses^b.

APHORISM LXI.

26. But for the *Idols of the Theatre*, they are neither innate, nor secretly insinuated into the Understanding; but plainly palm'd upon it; *Idols of the Theatre palm'd upon the Mind.* and received from fabulous Theories, and the perverted Laws of Demonstration. To undertake a Confutation of these, is by no means congruous with what we have already advanced^c: for where neither Principles nor Demonstrations are agreed upon, there can be no arguing. And this happens fortunately, to leave the Ancients possess'd of their Glory: we can detract nothing from them; whilst the Question is only concerning the Way^d. And a Cripple in the right Way may beat a Racer in the wrong one. Nay, the fleetest and better the Racer is, who has once miss'd

^a A Language formed and verified after the manner here indicated, is greatly wanting in Philosophy; and perhaps cannot be completed, till Philosophy itself is perfected.

^b Whence it is plain, that a just Language cannot be formed without a competent Knowledge of Philosophy.

^c See above, *App.* 35.

^d The Author is extremely apprehensive of being suspected to rival the Ancients; which Apprehension, if he had not well guarded against it, might have prejudiced his whole Design: as indeed it in some measure did; and still continues to do with many.

miss'd his Way; the farther he leaves it behind. Our Method, however, of discovering the *Sciences*, does not much depend upon Subtily, and Strength of Genius; but lies level to almost every Capacity, and Understanding. For, as it requires great Steadiness and Exercise of the Hand to draw a true strait Line, or a Circle, by the Hand alone; but little or no Practice, with the Assistance of a Ruler, or Compasses: so it is with our Method. And altho' there be here no use of particular Confutations; yet some Notice must be taken (1.) of the Sects and Sorts of these *Theories*; (2.) the false Colours thereof; (3.) the Causes of so great an Infelicity; and (4.) the Causes of so lasting and general a Consent in Error; and all this, that the Passage to Truth may be made the easier; and the Understanding the more disposed to cleanse itself, and put away its *Idols*."

" Dr. Hooke has familiarized and illustrated some Part of this Doctrine of *Idols*, in his *General Scheme, or Idea, of the present State of Natural Philosophy*. See Hooke's Posthumous Works, p. 7--11.

S E C T. III.

Of the different Philosophical THEORIES.

APHORISM LXII.

*Theories,
absence, and
how suppress'd.*

1. **T**HE *Idols of the Theatre*, or *Theories*, are many; and will probably grow much more numerous": for if Men had not, thro' many Ages, been prepossessed with Religion and Theology; and if civil Governments, but particularly Monarchies, had not been averse to Innovations of this kind, tho' but intended; so as to make it dangerous and prejudicial to the private Fortunes of such as take the Bent of Innovating^x; not only by depriving them of Advantages, but also by exposing them to Contempt and Hatred; there would, doubtless, have been numerous other Sects of Philosophies and Theories introduced; of kin

^x The Number of them has been great; even since this Piece was wrote.

^z See the Author's *Essay upon Innovation*, Supplem. XI. *Sett.* III. *ad fin.*

kin, to those that, in great Variety, formerly flourished among the *Greeks*. And these theatrical Fables have this in common with dramatical Pieces; that the fictitious Narrative is neater, more elegant and pleasing, than the true History⁷.

2. In general, Philosophy receives much Matter from a few Particulars; or else but little from many: so that, in both Cases, it is founded on too narrow a Basis of Experience, and Natural History; and pronounces from too little Knowledge⁸.

3. (1.) The rational Tribe of Philosophers hastily take up vulgar Things from Experience, without finding them to be certain; or carefully examining and weighing them: and commit all the rest of the Work to Thought, and the Discussion of the Wit⁹.

4. (2.) Another Kind of Philosophers labour, with great Diligence and Accuracy, in a few Experiments; and thence venture to deduce and build up Philosophies: and strangely wrest every thing else to these Experiments¹⁰.

5. (3.) Lastly, there is a Kind of such as mix Theology, and Traditions of Faith and Worship, with their Philosophy; and the Vanity of some among them has turn'd aside, to derive the Sciences from Spirits and Angels¹¹: so that the Origin of Errors, and false Philosophy, is of three Kinds; viz. (1.) *Sophistical*; (2.) *Empirical*; and (3.) *Superstitious*¹².

APHORISM LXIII.

6. We have an eminent Example of the *first* Kind in *Aristotle*; who corrupted *Natural Philosophy* with his *Logic*; in forming the World of *Categories*, or Predicaments; passing over the Business of *Rarification* and *Condensation*, with the jejune Distinction of *Act* and *Power*; asserting but one proper Motion to all Bodies; and imposing numerous other Fictions, at his own Pleasure, upon the Nature of Things: being all along more solicitous how Men might defend themselves by Answers, and advance something that should be positive in Words; than to come at the inward Truth of Nature¹³. This will appear to the full, by comparing the Philosophy of *Aristotle* with the other Philosophies, that were

Among the rational Philosophers; viz. Aristotle.

⁷ Thus the *Cartesian* Philosophy is more agreeable to read, than the *Newtonian*.

⁸ Commonly in the way of the vulgar Induction above-mention'd, *App.* 17.

⁹ See more of this below, *App.* 63.

¹⁰ See below, *App.* 64.

¹¹ Thus, in particular, *Chemistry* and *Natural Magick*, have been thought derived from Angels and Spirits.

¹² See below, *App.* 65.

¹³ As our Education in *Europe* is chiefly *Aristotelian*; we should have a strict Watch upon our selves in all Philosophical Enquiries, Writings, and Discourses; that we are not led away with *Aristotelian* Notions. It should seem as if all our common Reasoning was infected with *Aristotelian* Prejudices; so as to be affectedly logical and captious, rather than just and philosophical; or formed upon the true Nature of Things. See hereafter, *App.* 77.

celebrated among the Greeks. For the *Homoimera* of *Anaxagoras*, the *Atoms* of *Leucippus* and *Democritus*, the *Heaven* and *Earth* of *Parmenides*, the *Enmity* and *Amity* of *Empedocles*, the Resolution of Bodies into the neutral Nature of Fire, with their Return to Density, according to *Heraclitus*; all favour somewhat of Natural Philosophy, and Experience: whereas both the *Physics*, and *Metaphysics*, of *Aristotle*, speak little more than *logical Terms*. 'Tis true, his *Books of Animals*, *Problems*, and other Pieces, make frequent Use of Experiments; but then he had first pronounced without their Assistance; and did not duly consult Experience in forming his *Decrees* and *Axioms*: but after he had passed Judgment according to his own Humour; he winds Experience round, and leads her captive to his Opinions. And, upon this Account, he is more culpable than his modern Followers, the scholastic Philosophers, who meddled not with Experience at all^f.

APHORISM LXIV.

*The Empirical
Philosophy.*

7. But the *Empirical Philosophy* produces Opinions more deform'd and monstrous, than either the *sophistical* or the *rational*; as not being founded in the Light of vulgar Notions; (which, tho' slender and superficial, is yet in some sort universal) but rests in the narrow Confines and Obscurity of a few Experiments. Whence such a Philosophy appears probable, and in a manner certain, to the Men who daily converse with these Experiments; and thereby deprave their Imagination^g: whilst to all others it seems incredible and vain. We have a notable Example hereof in the *Chemists*, and their Doctrines; tho' the like, at this Time, perhaps, is not to be found, unless in *Gilbert's Philosophy*. Yet the Caution, with regard to these Philosophies, should by no means be pass'd over; because we foresee, and venture to foretel, that if Mankind, being admonish'd by us, shall at length, in earnest, betake themselves to *Experience*; and lay aside *sophistical Doctrines*; even then, thro' an over eager, and precipitant Hurry of the Understanding; and the Desire it has of bounding or flying to Generals, and first Principles; there will be great Danger from these narrow Philosophies^h: which is an Evil we ought to remedyⁱ.

APHORISM

^f For a farther Account of *Aristotle*, see p. 52. of this Volume.

^g That is, give it a Bent some one particular way; as we see in those who have long applied themselves to a certain Trade; the Discovery of the Longitude; the making of Gold; the writing a certain Book; or the prosecuting any one Set of Experiments: for thus, without a prudent Change and Intermixture of Studies, and Employments, the Mind will be warped; and strangely draw foreign Things to some Consent with those under Consideration; or else neglect and overlook whatever does not immediately regard the present View.

^h Thus, tho' there is always some one reigning or general Philosophy; yet almost every Enquirer into Nature has a particular lesser System, form'd upon his own Experience. This appears remarkably in the Members of the *Royal Academy of Sciences at Paris*, &c.

ⁱ Regard is had thereto through the whole Course of the Work.

APHORISM LXV.

8. But the *Corruption of Philosophy*, from the Admixture of *Superstition And the Superstitious* and *Theology*, is much more extensive and pernicious; either to whole Bodies of Philosophy, or their Parts: For the Understanding is as subject to the Impressions of Fancy; as to the Impressions of vulgar Notions. The disputatious, or sophistical Philosophies, may indeed entrap the Understanding; but the superstitious, tumid, and, as it were, poetical Kind, flatters and courts it more: for Men have a certain Pride of the Understanding, as well as of the Will; especially Men of an elevated Genius¹.

9. We meet with an Example of this Kind among the *Greeks*, and principally in *Pythagoras*; tho' join'd with a gross and burthenfome Superstition²: but a more dangerous and subtile one in *Plato*, and his School³. The same kind of Mischief likewise happens in the Parts of the other Philosophies; as, by introducing *abstract Forms, final Causes, and first Causes*; commonly omitting those that are intermediate. And in this Case the utmost Caution should be used; for nothing is more pernicious than to canonize Errors: and to venerate Vanities, should be accounted the Pest of the Understanding. Yet some of the Moderns have so far indulged this strange Levity, as to endeavour the founding of *Natural Philosophy* upon the first Chapter of *Genesis*⁴, the Book of *Job*, and other Parts of Sacred Writ; thus *seeking the Dead among the Living*. And this Vanity is so much the rather to be restrain'd and suppress'd; as from the wild Mixture of divine Things with human, arise not only *phantastical Philosophies*, but *heretical Religions*⁵. 'Tis, therefore, of great Importance, with a sober Mind, to *give to Faith* no more than *the Things that are Faith's*. And thus much for the bad Authorities of Philosophies; which are founded (1.) in vulgar Notions; (2.) Scantiness of Experiments; and (3.) in Superstition⁶.

Exemplified in Pythagoras and Plato.

APHORISM LXVI.

10. We proceed next to the *corrupt Matter of Contemplation*⁷, especially in *Natural Philosophy*. The Understanding is perverted by the Sight of Things performed in the mechanic Arts, which generally alter

The corrupt Matter of Contemplation.

¹ See below, *App.* 71.

² See hereafter, *App.* 105.

³ See below, *App.* 75, 76, 77, 96, 105.

⁴ See Dr. *Keil's* Philosophical Examination of certain *Theories* of the Earth.

⁵ This Caution appears to have been too little observed by the modern Philosophers.

⁶ As is shewn in the preceding *Aphorisms*; 63, 64, 65.

⁷ Viz. Where erroneous Notions are formed of Things; and applied, by the mental Powers, in the building up of Philosophy.

(1.) From Errors in the mechanic Arts and Nature.

the Bodies by *Composition*, or *Separation*^a: whence Men are apt to imagine, that something of the like Kind happens in all natural Bodies: and from this Notion, the Figment of the *Elements*, and their uniting to compose all natural Bodies, had its Rise. Again, when Men contemplate Nature in her Freedom, they meet with different Species, or Appearances, of Things; as, Animals, Vegetables, Minerals; and hence readily imagine there are in Nature certain *primary* Forms, or Differences, which she endeavours to disclose or educe; whilst the other Varieties proceed from some Impediments and Deviations of Nature in her Work; or from the Struggle of different Species, or Bodies, together; and the Transplantation of one into another^b. The former Imagination produced the Notion of *primary*, or *elementary* Qualities; and the latter that of *occult* Qualities, or *specific* Virtues: both which are owing to the empty abridging of Contemplations; wherein the Mind resting, is kept from more solid Knowledge. But Physicians operate better by Means of the *secondary* Qualities, and Virtues of Things; such as those of attracting, repelling, attenuating, discussing, ripening, &c. and might have advanced much farther, but for that fruitless Abridgment by the above-mention'd *elementary* Qualities, and *specific* Virtues; wherewith they corrupt the others, which are justly observed; either by reducing them to *primary* Qualities, and their subtle and incommensurable Mixtures; or by not carrying them on, with continued Diligence and Observation, to *third* and *fourth* Qualities; but unseasonably breaking off the Consideration. Nor are these, and the like Qualities, to be enquired after only in Medicines for the human Body; but also in the Changes of all other natural Bodies^c.

(2.) From Logical Notions in Physics.

11. But it is much more prejudicial, that the *quiescent* Principles, whereof Things consist, should be studied and enquired into; and not the *moving* Principles, whereby they act: the former relating to Discourse; but the latter to Works. For those vulgar Differences of Motion in the common Natural Philosophy; such as *Generation*, *Corruption*, *Augmentation*, *Diminution*, *Alteration*, *Removal*, &c. are of little Significancy; as meaning no more, than that if a Body, otherwise unmoved, be put out of its Place, this is *Removal*; but if the Place and Appearance remain the same, and the Body be changed in Quality, this is *Alteration*; and if, from such a Change, the Bulk and Quantity of the Body do not remain the same, this is a Motion of *Augmentation*, or *Diminution*; but if Bodies are so far altered as to change both Appearance and Substance, and turn into others, this is *Generation*, and *Corruption*. But these are mere popular Notions, that no way enter into Nature; being only the Measures and

^a And hence *Mechanics* and *Chemists* are frequently deceived: when they suppose that Nature separates and joins Bodies, after the manner that Men join and separate them.

^b As when Monsters are produced.

^c If Light be required in this Subject, Mr. Boyle's *Enquiry into the Origin of Forms and Qualities*, may be advantageously consulted. See, in particular, the *Abridgment of his Works*, Vol. I. p. 271, 272. See also the Author's *Sylva Sylvarum*; passim.

and Periods, and not the *Species of Motion*¹; and pointing out only *how far*, and not by *what Means* Things have proceeded. Nor do they intimate the *Appetites of Bodies*², or the Operations of their Parts; but only when the Motion exhibits a Thing to the Sense, in a gross manner, different from what it was; Men there begin their Distinction. Nay, when they would intimate any thing, as to the Causes of Motions, and raise a Division from them, they idly introduce a jejune Distinction betwixt natural and violent Motion; this itself being but a mere vulgar Conceit: for all violent Motion is truly natural; the external Efficient only setting Nature otherwise at work, than she was before³.

12. On the other hand; if any one should observe that Bodies have an Appetite to touch each other, so as to prevent a Vacuity, or Separation in the Union of Nature; or that Bodies have an Appetite of contracting themselves within their own natural Dimensions, out of which, when they are either stretched or squeezed, they immediately endeavour to restore themselves, and recover their former State; or that Bodies have an Appetite of coming together to the Masses of Matter similar to them; that is, the Mass of dense Bodies towards the Globe of the Earth: These, and all such, are true physical Kinds of Motion. But the former are merely logical, and scholastic; as will manifestly appear, by comparing the two together.

13. Nor is it a less Misfortune, that Men, in their Philosophies and Contemplations, bestow their Time in discovering and treating the *ultimate Principles*, or *last Resorts of Nature*: whereas all Utility, and Power of Acting, lies in the Mid-way⁴. But, generally, Men cease not to abstract Nature, till they arrive at potential and uninformed Matter; or till they have divided her so far, that they come to Atoms: which Things, tho' ever so real, make but little to the Advantage of Mankind⁵.

APHORISM LXVII.

14. The Understanding also is to be guarded against the *Excesses* of Philosophies, as to the yielding or withholding of Assent; because such kinds of Excesses seem to fix, and, in a manner, perpetuate, *Idols*; as not allowing any Opportunity for their Removal.

15. These *Excesses* are of two Kinds: the one belonging to such as pronounce hastily; and make the Sciences positive and magisterial: the other to those who have introduced Scepticism, and a vague indeterminate

¹ For the Species of Motion, see hereafter, Part II. App. 48.

² Viz. The Dispositions that Bodies have to be affected and altered by each other, upon Contact, Mixture, &c. as the Loadstone attracts Iron, Gold attracts Quicksilver, &c.

³ This is farther illustrated in the Second Part of the present Work; and in the *Sylva Sylvarum*. See the Articles *Nature, Motion, Spirits*, &c.

⁴ This is already explain'd under App. 48, 51, 57.

⁵ See above, App. 19, 20, 21, 22.

*How physical
Notions differ
from metaphysical.*

(3.) Not keeping a Mean in Nature.

And (4.) from Excesses in Point of Assent.

These Excesses of two Kinds.

Instanced in
Aristotle.

nate Method of Enquiry. The former of these depresses, and the latter enervates the Understanding. The Philosophy of *Aristotle*, (when, after the *Turkish* Manner, it had slain its Brother-Rivals to the Throne,) pronounced upon every thing; suborning Questions at Pleasure, and dispatching them again, to shew that all was now certain and decided. And this Method has also prevailed, and is in use, among the *Aristotelian* Successors of Philosophy^a.

Plato.

16. But the School of *Plato* introduced Scepticism; at first in the way of Jest and Irony, to oppose the ancient Sophists, *Protagoras*, *Hippias*^b, and the rest; who feared nothing so much as the appearing to doubt of any thing^c. But the new *Academy* dogmatized upon Scepticism, and profess'd it. And tho' this was a fairer Procedure than by pronouncing licentiously; (for they declared they meant not to confound Enquiry, as *Pyrro* and his Followers did; but held what they pursued as probable, tho' not what they professed as true;) yet, when once the Mind despairs of finding Truth, all Things languish: whence Men rather turn aside to Philology, agreeable Conversation, Discourse, and Roving; than confine themselves to the Severity of Enquiry. But the Point we constantly have before us, is not to lessen the Authority of the Sense and Intellect, and expose their Imperfections; but to afford them all the Helps we can.

Pyrro.

APHORISM LXVIII.

All Idols to be
renounced.

17. And thus much for the several Sorts of *Idols*; which are all of them to be solemnly and for ever renounced; that the Understanding may be thoroughly purged and cleared: for the Kingdom of Man, which is founded in the *Sciences*, can scarce be enter'd otherwise than the *Kingdom of God*; that is, in the Condition of little Children^c.

APHORISM LXIX.

False Demon-
strations coun-
tenance the
Idols of the
Mind.

18. *Corrupt Demonstrations* serve as the Guards and Defenders of the *Idols* of the Mind; logical Demonstrations being generally such as subject and enslave the World to the Thoughts of Men; and Thoughts to Words^d: whereas *genuine Demonstrations* are, potentially, *Sciences* and *Philosophies* themselves^e. For such as are the Demonstrations, or, according as they were conducted, well or ill; such are the Doctrines and Specula-

^a See hereafter, *Apb.* 71, 72.

^b See below, *Apb.* 71.

^c See *Vol.* I. p. 31. and p. 118.

^d *Viz.* By discharging all the false, complex Ideas, and unjust Notions, enforced or imbibed thro' Education, Custom, Prejudice, particular Studies, or any of the Causes above-mentioned.

^e It must here be remember'd, what was said above, that *Syllogisms* consist of Propositions, Propositions of Words, &c. See *Apb.* 11, 12, 13. and again, 24, 47.

^f See *Apb.* 22. Demonstrations are potentially *Sciences* and *Philosophies*; because, as the Demonstrations are just or false; so will the Doctrines that follow from them be true or erroneous.

Speculations that follow upon them. Those Demonstrations, we at present use, in the whole Process that leads from Sense and Things, to *Axioms* and *Conclusions*, are fallacious and insufficient¹. This Process is of four Kinds; and so are its Errors. (1.) The Impressions of the Sense itself are vicious: for the Sense both fails and deceives. But its Failures are remedied by *Substitution*; and its Fallacies by *Rectification*². (2.) *Notions* are ill form'd from the Impressions of the Senses; and prove indeterminate and confused; but ought to be clear and well limited³. (3.) *Induction* is faulty; as inferring the Principles of the Sciences by simple Enumeration; without duly excluding, resolving, and separating Things or Natures⁴. (4.) Lastly, that Method of Invention and Proof, which first raises the most general Principles, then applies the intermediate Axioms thereto, and tries them; is the Mother of Errors, and the Destruction of all the Sciences⁵.

APHORISM LXX.

19. But *Experience* is by far the best *Demonstration*; provided it dwell in the Experiment: for the transferring of it to other Things judged alike, is very fallacious; unless done with great Exactness and Regularity. But the present Method of Experimenting is blind and stupid¹: and therefore, whilst Men wander, and hold no certain Course, but take Advice only as Things occur; they are hurried round to abundance of Particulars, without advancing forward. And sometimes they are pleased, sometimes disconcerted; but always find Matter of farther Enquiry². It commonly happens that Men make Experiments slightly, and as in the way of Diversion; somewhat varying those already known: and if they succeed not to their Expectation, they grow sick of the Attempt, and forsake it. Or, if they apply in earnest to Experiments, they commonly bestow all their Labour upon some one Thing; as *Gilbert* upon the *Loadstone*, and the *Alchemists* upon *Gold*. But this Procedure is as unskilful as it is fruitless: For no Man can advantageously discover the Nature of any Thing in that Thing itself; but the Enquiry must be extended to Matters that are more common³.

20. Again,

¹ See above, *Apb.* 26, 27, 28, 29.

² *Viz.* By means of suitable Instruments and Experiments. See *Apb.* 16, 18, 50. But for assisting, rectifying, and verifying the *Senses*, see hereafter, *Part II.* *Apb.* 38, 39, 40, &c.

³ See *Apb.* 15, 18, 19, 20, and 40.

⁴ See *Apb.* 14, 18, 19, 20, 21, 22.

⁵ See above, *Apb.* 19, &c.

⁶ Not led by any Light of Knowledge, or Axioms; but proceeding by Conjecture, and at Random.

⁷ The Remedy for all this is proposed in the Second Part of the Work.

⁸ Thus, in the Enquiry after the Means of prolonging Life in Man, the Author first enquires into the Ways of rendring simpler Bodies durable; and endeavours to find out the Requisites for that Purpose; then transfers, so much as is suitable of the Discovery, to the human Body.

The Error of
leaving Expe-
riments too
soon.

20. Again, if Men do prosecute any Science or Doctrine, in the way of Experiment; yet they generally go off to Practice hastily and unprepared: and this not so much for the Use and Benefit of the Practice itself, as to receive a kind of Security in some new Work, that they shall not fruitlessly employ themselves in others; as also, that, from a Manifestation of their Success, they may procure a better Opinion of themselves, as to what they have in hand. And thus, like *Atalanta*, stooping to take up the golden Fruit, they interrupt the Course, and lose the Victory. But, in the true Course of Experience, and applying it to new Works, we should follow the Example of the divine Wisdom, and Order. For as God, in the first Day of Creation, made nothing but Light; allowing one whole Day to that Work; without creating any material Thing therein: so *Causes* and true *Axioms* are first to be drawn out from all Kinds of Experience; and the *Experiments of Light*, and not of *Profit*, to be investigated. For *Axioms*, duly discover'd and establish'd, will afford plentiful Harvest of Practice; and draw after them whole Sheaves of Works°.

The common
Experience, a
false Demon-
stration.

21. At present, we have only spoke of *vulgar Experience*, as a *false Demonstration*; but shall hereafter consider those Ways of Experimenting, which are no less block'd up and beset than the Ways of Judging^p. But first, we must treat of the Signs that manifest the present Philosophy, and the Sciences, to be faulty; as also the Causes of so strange a Thing: For these are two very useful Means of gently and calmly extirpating the *Idols of the Mind*; as a Knowledge of the Signs prepares the Assent; and the Explanation of the Causes takes away the Miracle.

° It is extremely difficult to convince the Mind of this; at least, so far as to make Men assent upon it. For Philosophers do not seem greatly employ'd in discovering these *Causes*, and raising these *Axioms*, upon which a serviceable Philosophy is to be founded.

^p See Sect. V. *Apb.* 10, 11, 87, 88, &c.

S E C T.

* In
principa
school o
the Man
Vol

S E C T. IV.

Of the Signs, or Characteristicks, of false
P H I L O S O P H I E S.

APHORISM LXXI.

1. **T**HE Sciences we possess are almost wholly derived from the *Greeks*: (1.) *The Grecian Philosophy is faulty in its Origin, and deceitful.* For what the *Roman, Arabian*, and more modern Authors have added, is not much, or of any great Weight; and also built upon the Discoveries made by the *Greeks*. But the Knowledge of the *Greeks* was of the professorial and disputatious Kind; which is absolutely unfit for searching after Truth. And hence the Name of *Sophist* was, by those who desired to pass for Philosophers, contemptuously thrown upon the old Rhetoricians; as *Gorgias, Protagoras, Hippias, Polus*, and almost the whole Number; as *Plato, Aristotle, Zeno, Epicurus, Theophrastus*, and their Successors *Crisippus, Carneades, &c.* There was only this Difference betwixt them, that the former were a wandering, mercenary Tribe, who went from City to City, making a Shew of their Wisdom, and asking a Reward: whilst the other were more grave and generous; who having fix'd Habitations, open'd their Schools, and taught without Fee. Yet both Kinds were professorial; they both reduced every thing to Dispute; and instituted and defended certain Sects and Heresies of Philosophy: so that their Doctrines, as *Dionysius* sharply said of *Plato*, were only the Talk of idle old Men, to raw young Fellows. But the more ancient among the *Greeks*, as *Empedocles, Anaxagoras, Leucippus, Democritus, Parmenides, Heraclitus, Xenophanes, Philolaus, &c.* open'd no Schools that we hear of; (for we omit *Pythagoras*, as superstitious*) but applied themselves to the

* In another Place, the Author observes of *Pythagoras*, that his Doctrine and Discoveries principally regarded the Founding of a certain Religious Order, rather than the opening any School of Philosophy; as may appear from the Event: because his Doctrine prevailed more in the Manichean Heresy, and the Mahometan Superstition, than among Philosophers.

Discovery of Truth, with greater Severity and Simplicity; or with less Affectation and Shew. And hence, we conceive, they made a greater Progress^b; only thro' Tract of Time their Works are lost, and superseded by lighter Studies; which prove more pleasing, and better suited to the vulgar Capacity and Affections: Time thus, like a River, bringing down to us such Things as are light and tumid; but sinking those that are weighty and solid. Neither were these Philosophers clear of the Fault of their Nation; but had too strong an Ambition and Vanity for building Sects, and acquiring popular Fame. But the Search after Truth is to be held desperate, when it turns aside to such empty Things as these. The *Egyptian* Priest judged, or rather prophesied, well of the *Greeks*; that they would always be Children; without *Antiquity of Knowledge*, or *Knowledge of Antiquity*: and indeed, they have this Property of Children, that they are ready at Talk, but unripe for Generation; their Knowledge being verbal, and barren of Works. And therefore, the *Characteristicks* of the Philosophy in use among us, taken from that Origin and Nation, are false and deceitful^c.

APHORISM LXXII.

The Greeks
Masters of but
little Know-
ledge.

2. Nor are the *Signs* taken from the *Time* and *Age* of the *Grecian* Philosophy, much better than those taken from the Nature of the People. For

^b The Author, in another Place, observes, that we have the Works of *Plato* and *Aristotle* extant; so that we may form some tolerable Judgment of their Philosophies, from the Fountains themselves: But as to *Pythagoras*, *Empedocles*, *Heraclitus*, *Anaxagoras*, *Democritus*, *Parmenides*, *Xenophanes*, &c. the Case is different; because we have only some Fragments preserved of them, and receive their Opinions at second hand, or from certain Rumours: so that to discover their Philosophies, requires greater Diligence of Enquiry, and Soundness of Judgment, to balance the Loss. Upon this, the Author declares, he had, with the utmost Diligence and Exactness, collected all that related to their Opinions, from *Aristotle's* Confutations thereof, or as they are cited by *Plato* and *Cicero*; the Collections of *Plutarch*, the Lives of *Laertius*, the Poem of *Lucretius*, or wherever else he could find the least mention of them; and faithfully examined the Whole.

^c The Philosophies of *Plato* and *Aristotle* are the chief of those deliver'd down, in any tolerable Perfection, to us from the *Greeks*. That of *Aristotle* has been diligently explained, and illustrated; but less Pains seems taken with the *Platonic Philosophy*. The Author observes, that *Aristotle's Philosophy* is founded in vulgar Notions; and the useless comparing of them together; so as to shew where they clash, and how they may be reconciled; whilst nothing solid can be expected from the Man, who made the System of the World a logical Thing; and corrupted all his Natural Philosophy with logical Terms and Notions. As for *Plato*; the Author esteems him a Man of a more sublime Genius, who attempted even the *Discovery of Forms*; and used the *Form of Induction*, not only in Principles, but in every thing; tho' after a fruitless manner; as always catching at, and receiving, *vulgar Inductions*, and *abstract Forms*: so that whoever attentively considers his Writings and Manner, will find he was not very solicitous about Natural Philosophy; only so far as might serve to keep up the Name and Reputation of a Philosopher; and enable him to grace, or add a certain Majesty, or Dignity, to his Civil and Moral Doctrines; whilst, at the same time, he corrupted Nature as much by his *Theology*, as *Aristotle* did by his *Logick*; and approached as near to a *Poet*, as *Aristotle* did to a *Sophist*. See more to this purpose, p. 52, 53. of this Volume.

For that Age had but a very slender Knowledge, both of Times, and the habitable World: which is a great Defect, especially with such as place all Things in Experience. For they had not the History of a thousand Years, that deserved the Name of a History; but only Fables, and Rumors of Antiquity. And for the different Countries of the World, they knew but a very small Part thereof; as calling all the more Northern People *Scythians*; and all the Western *Celtæ*, indiscriminately. They had no Knowledge in *Africa*, beyond the nearest Part of *Ethiopia*; nor in *Asia*, beyond the *Ganges*: and for the new World, they never heard of it; nor had any certain Tradition about it. Nay, they pronounced many Climates and Zones uninhabitable; where infinite People are found. And for the Travels of *Democritus*, *Plato*, *Pythagoras*, &c. tho' celebrated as something considerable, they were but short; and almost within their own Walls, compared with the Voyages of our Times, into numerous Parts of the new World, and the Extremities of the old: whence we are supplied with a vast Stock of Experiments. And therefore, if Signs are to be taken of Philosophies, in the Astrological manner, from the Times of their Generation and Nativity; no great Good is thence promised of the ancient.

APHORISM LXXIII.

3. But of all the Signs of Philosophies, none are more certain and noble, than those taken from their *Fruits*: for Fruits, and the Discoveries of Works, are as the Vouchers and Securities for the Truth of Philosophies. But from the Philosophies of the *Greeks*, and their Descents thro' particular Sciences, now for the Space of so many Years, scarce a single Experiment can be produced, tending to accommodate or improve the State of Man, that may be justly attributed to the Speculations and Doctrines of their Philosophy. And thus much is ingenuously and prudently allow'd by *Celsus*, that *Experiments in Medicine were first made, and that Men afterwards philosophized upon them, to find out and assign their Causes; but did not, contrariwise, discover and deduce Experiments from Philosophy, and the Knowledge of Causes.* Whence it was no wonder the *Egyptians*, who bestowed Divinity and Consecration upon the Inventors of Things, had more Images of Brutes, than of Men: for Brutes, by their natural Instinct, have made many Discoveries; whilst Men, with their Discourses and rational Conclusions, have made few or none^d.

(2.) *The best Signs of Philosophies, from their Fruits.*

The Greek Philosophy has yielded none.

4. 'Tis true, the Industry of the *Chemists* has produced some; tho' rather accidentally, and without Design; or by varying Experiments, as the *Mechanicks* do; and not by the Rules of Art, or from Theory: for the Theory which they have imagin'd is rather hurtful than advantageous.

The Chemists as a few; but casually.

^d This, and several other Passages of the same general Kind, have been already used in the *de Augmentis Scientiarum*; but are not needlessly repeated here, because they serve to prove new Points: otherwise it might have been proper to drop them.

So likewise the *natural Magicians* have discover'd a few light Things, that approach to Imposture: and therefore, as 'tis a Caution in Religion, that *Faith be manifested by Works*; an admirable Rule may be hence derived into Philosophy, *viz. that it be judged by its Fruit*; and held as vain, if it prove barren: and this the more, if instead of *Grapes and Olives*, it produces the Thistles and Thorns of Disputes and Altercations.

APHORISM LXXIV.

(3.) *The Signs, from the Progress of Philosophies.*

5. *Signs* are also to be taken from the Progress and Increase of Philosophies, and the Sciences: for Things planted in Nature will grow, and enlarge; but Things founded in Opinion will differ, and not thrive. And therefore, if the ancient Doctrines had not been like Plants pluck'd up and sever'd from their Roots, but still adhered to the Womb of Nature, and were fed by her; that could not have happen'd, which we see has happen'd, for these two thousand Years: the Sciences still remaining where they were; and almost in the same Condition, without any considerable Improvement: nay, they rather flourish'd most in their original Authors, and afterwards declined. On the contrary, the mechanic Arts, which are founded in Nature, and the Light of Experience, and remaining pregnant, as it were, with Spirit, so long as they continue to please; are ever upon their Increase and Growth; being first rude, then fashion'd, and, lastly, polish'd, and perpetually improved.

APHORISM LXXV.

(4.) *The Confession of Authors.*

6. There is another Sign to be taken from the Confession of the Authors themselves, now follow'd by Mankind: tho' this is rather a Testimony, of the strongest Kind, than strictly a Sign. For tho' these Authors pronounce upon Things with so much Confidence; yet at Intervals, when they come to themselves again, they fall upon complaining of the Subtlety of Nature, the Obscurity of Things, and the Insufficiency of the human Nature. And if this were done in Simplicity, it might deter the Fearful from farther Enquiry; and stir up others of a brisker and more daring Genius, to a farther Prosecution: But not content to acknowledge only for themselves; they place beyond the Bounds of Possibility, every thing that was either unknown, or untried by them or their Masters; and thus haughtily and invidiously pronounce Things impossible to Art; and bend the Weakness of their own Discoveries, to calumniate Nature, and propagate Despair. Hence proceeded the new School of the *Academics*, which made Profession of Scepticism, and condemned Mankind to eternal Darkness*: hence the Opinion, that physical *Forms*, or the real Differences of Things, were impossible, or beyond the Power of Man

* See above, *Aph.* 67.

Man to discover: hence those Notions as to Operations, that the Heat of the Sun is a Thing absolutely different from the Heat of Fire; lest Men should think they might produce by Fire, some Things like the Productions of Nature. And hence proceeds the Notion, that *Composition* only was the Work of Man, and *Mixture* the Work of Nature; to keep Men from expecting any artificial Generation, or Transformation of natural Bodies^f. And thus Men are easily persuaded, by this false Colour, not to risk their Fortunes, and their Labours, in Things not only condemned, but already given up to Despair^g.

APHORISM LXXVI.

7. We must not omit that other Sign; viz. the great Disagreement *The Dissention* among the ancient Philosophers, and the Differences of their Schools; of *Professors*. which sufficiently shews, that their Way from Sense to the Understanding was not well guarded; whilst one and the same Subject of Philosophy, the Nature of Things, was rent and split into so many, and such wild Errors. And altho', at present, the Dissentions and Disagreements of Opinions, as to first Principles, and entire Philosophies, are in a manner extinct^h; yet such innumerable Questions and Controversies still remain among us, as make it plainly appear, that there is nothing fix'd and stable, either in our present Philosophies, or the manner of our Demonstrationsⁱ.

APHORISM LXXVII.

8. Men have an Opinion of a *general Consent* in the Philosophy of (5.) *The Argument of general Consent, fallacious.* Aristotle; as if, after that was once published, the more ancient Philosophies ceased, and grew into Disuse; and that nothing better was discover'd in the succeeding Ages; this being so well founded, as to draw

^f The Author has a great Regard to the abolishing of these false Imaginations, in all the Parts of his *Instauration*. See his *Sylva Sylvarum*, *passim*; and the *Second Part* of the present Piece.

^g This seems to be a grand Obstruction to the Improvement of Philosophy and Arts; and extremely difficult to remove; as having not only Mens natural Indolence to struggle with; but also their artificial and learned Despondency; in which, sober and intelligent Persons generally think they shew their Judgment. And hence new Improvements in Mechanics, Medicine, &c. meet with a slow Reception, by those esteem'd for Sobriety and Judgment. And tho' this Slowness may often be well placed; yet, in general, it appears to proceed from a want of knowing the Powers of *Man and Nature*; or from an inveterate Prejudice against the Possibility of doing Things not done, or not believed to have been done before. The following *fifth* and *sixth* Sections are directly levell'd at reforming this Error.

^h As chiefly agreeing in the *Peripatetic Doctrine*.

ⁱ The Uncertainty of the common Demonstrations might give Occasion to the introducing of mathematical ones into Physics: and these being the most certain, if they could be universally applied, Men would then differ in Philosophy as little as they do now in Mathematics: but it may deserve a serious Consideration, whether *Mathematical Demonstrations*, applied to Matter, are suited to the Purpose; or do not, like the common Syllogism, let Nature slip through; and leave the Demonstration an empty Thing.

draw both former and latter Times into it: But the Whole is a Fallacy. For (1.) the Works of the more ancient Philosophers were in being to the Times of *Cicero*, and the following Ages; till the Inundation of the Barbarians upon the *Roman Empire*; when the Philosophies of *Aristotle* and *Plato* were saved from the general Shipwreck of human Learning; as light Planks, supported by the Waves of Time. And (2.) that alone can be justly called *Consent*, which consists in a Freedom of Judgment agreeing in the same Thing, after due Examination: but far the greater Number of those who consent in *Aristotle's* Philosophy, are enslaved to it by the Prejudice and Authority of others; so that 'tis rather an *Obsequiousness* than a *Consent*. But tho' it were a free and general *Consent*; yet *Consent* ought to be so far from passing for any real Authority, as to give a violent Suspicion of the contrary: for of all Characteristicks, that is the worst which Men take from *Consent*, in Matters of the Understanding; except such as concern *Religion* and *Politicks*, which properly go by Voices. For nothing can please the Many, but what strikes the Imagination; or binds the Understanding with the Cords of vulgar Notions^k. So that the Thought of *Phocion*^l, may be justly transferr'd from Morals to Intellectuals; for Men ought directly to examine themselves, wherein they have err'd, or done amiss; when the Multitude consents, and applauds them. This Sign, therefore, of general Consent, is one of the most unfavourable that a Philosophy can have^m. And thus much for the false Characteristicks of the Philosophies and the Sciences, in use; whether taken (1.) from their Origins; (2.) their Fruits; (3.) their Progress; (4.) the Confessions of their own Authors; or (5.) from Consentⁿ.

^k This *Aporism* requires a strict Attention; and unless the Mind be thoroughly convinced of the Truth and Certainty thereof, the Reader will, on many Occasions, be apt to conceive, that in what follows, the Author is delivering a kind of laborious, learned Dream, instead of a solid useful Work.

^l *Phocion* being once highly applauded by the Multitude; turn'd round to his Friends, and ask'd what Absurdity he had committed.

^m Because, if the Consent be general, the Vulgar also must be admitted Judges; and we all know what Judges they are, or what the Things must be that please the Multitude.

ⁿ See *Aph.* 71—77.

S E C T.



S E C T. V.

Of the Causes of Errors in PHILOSOPHIES.

APHORISM LXXVIII.

1. **W**E next proceed to the numerous and prevalent *Causes of Errors*, *The Causes* and their Continuance thro' so many Ages; that Men may no longer wonder, how the Things we advance have hitherto been hid from them; and this alone remain the Surprise, how they should now come into any one's Mind: which, however, in our Judgment, is owing to a Felicity, and not to any Excellence of Talent; so as rather to appear the Product of Time, than the Product of Genius.

2. And (1.) so many Ages, if justly consider'd, shrink to a small Compass; for of twenty-five Centuries, wherein the Memory and Learning of Mankind have been exercised, scarce six can be cull'd out as fertile in Sciences, or suitable to their Improvement: for Times, as well as Countries, have their Wastes and Desarts. There can be properly reckon'd but three Periods and Revolutions of Learning; one among the *Greeks*, another among the *Romans*, and the third among our selves, or the *Western Nations of Europe*; to each whereof scarce two Centuries can be fairly attributed. The middle Ages of the World were unhappy, as to any plentiful Harvest of the Sciences. Nor need we mention any thing either of the *Arabians*, or the *School-men*; who, in the intermediate Times, rather ground down the Sciences by numerous Treatises, than added to their Weight.

* In reading the Author's Works, this seems to be the general Stumbling Stone: *How should he be able to do more than Plato, Aristotle, and all the Ancients put together? Shall he only be in the Right, and every Body else in the Wrong? Such a Conceit of a Man's own Ability is monstrous, shocking, and intolerable.* This is Reasoning by Anticipation; or in the common Way of Men. But when the Fury is over; the Question to be calmly consider'd is, *What has he done?* But to conquer Prejudice, and bring the Mind better prepared to consider of this Question, the Author here endeavours to account for the Strangeness of the Thing; and to pacify and reconcile the Mind, before he informs it.

Weight^p. And therefore, the first Cause of so little Progress in Knowledge, is, properly, a *Scantiness of Times well suited for it*.

APHORISM LXXIX.

(2.) Little Labour bestow'd upon Natural Philosophy.

3. (2.) A second Cause, of very great Moment, is, that thro' all those Ages, wherein Men of Genius and Learning principally, or even moderately, flourish'd; the smallest Part of human Industry has been spent upon *Natural Philosophy*; tho' this ought to be esteem'd as the great Mother of the Sciences^q: for all the rest, if torn from this Root, may perhaps be polish'd, and form'd for Use; but can receive little Increase. And, 'tis manifest, after the *Christian Religion* was receiv'd, and gain'd Ground, that much the greater Part of the fine Genius's bent themselves to *Theology*; whereto both the noblest Rewards were annex'd, and all Kinds of Assistance liberally afforded. And this Study chiefly employ'd the third Period of Time^r amongst the *Western Europeans*; the more, as Learning then began to flourish, and Controversies about Religion to arise. But, in the preceding Age, during the second Period, the principal Study and Labour of the Philosophers, among the *Romans*, were bestow'd upon *Morality*; which, to the *Heathens*, was instead of *Theology*. Besides, the greatest Genius's of those Times chiefly applied themselves to *Politics*; the large Extent of the *Roman Empire* requiring large Assistance. But that Time wherein *Natural Philosophy* seem'd principally to flourish among the *Greeks*, was of short Duration; and, in the still earlier Ages, the seven *Wise Men*, as they were call'd, all, except *Thales*, applied themselves to *Moral Philosophy*, and *Politics*: and when *Socrates* afterwards brought down Philosophy from the Heavens to Earth, the Study of *Morality* prevail'd still more; and turn'd the Minds of Men from *Natural Philosophy*.

The Times, at best, unfavourable to Natural Philosophy.

4. Nay, that very Period of Time, wherein natural Enquiries most prevail'd, was corrupted, and render'd useless by Cavils; and the Ostentation of new Opinions. And therefore, as thro' these three Periods, *Natural Philosophy* was either greatly neglected, or greatly obstructed; 'tis no Wonder if Mankind made little Progress in it, whilst their Minds were wholly bent another Way^s.

APHORISM

^p As repeating the same Matter over and over again; and new modelling and dividing it, without making any considerable Addition thereto.

^q Natural Philosophy, that is, a Knowledge of Nature, appears to be the great Mother of the Sciences; because neither the Arts of Speech, Logic, Medicine, Civil Policy, Morality, Religion, &c. can be advantageously exercised, improved, understood, or instituted without it: and all the mechanical Arts depend upon it.

^r See *Apb.* 78.

^s Let Care be taken to verify or falsify this Account from *History* as much as possible; wherever it may be required.

APHORISM LXXX.

5. Add to this, that *Natural Philosophy* scarce ever found one, among those who study'd it, that gave himself wholly up thereto; especially in these latter Times; unless we should here and there except a Monk in his Cell, or a studious Gentleman at his Country-Seat: whence this Philosophy has always been but as a Passage, and Introduction, to other Things. And thus the great Mother of the Sciences is, with surprizing Indignity, degraded to the Office of a Handmaid; administering to the Occasions of Medicine or Mathematics, and tending the unripe Capacities of Youth; or giving them their first Tincture, for the more commodious and successful Attainment of other Kinds of Learning.

(3.) Few entirely addicted to *Natural Philosophy*.

6. But let none expect any great Promotion of the Sciences, especially in their effective Part, unless *Natural Philosophy* be drawn out to particular Sciences; and again, unless these particular Sciences be brought back to *Natural Philosophy*. From this Defect it is, that *Astronomy*, *Optics*, *Music*, many *Mechanic Arts*, *Medicine* itself; and, what seems stranger, even *Moral* and *Civil Philosophy*, and *Logics*, rise but little above their Foundations, and only skim over the Surfaces and Varieties of Things; viz. because, after these particular Sciences are divided off, and form'd, they are no longer nourish'd by *Natural Philosophy*; which might give them new Strength and Increase: as from the Causes and genuine Consideration of Motions, Light, Sounds, the Texture and Structure of Bodies, the Affections, and intellectual Apprehensions. And, therefore, no Wonder if the Sciences thrive not, whilst they are separated from their Roots^c.

APHORISM LXXXI.

7. Another great Reason of the slow Progress of the Sciences, is this; that 'tis impossible to proceed well in a Course, where the End is not rightly fix'd and defined. Now the true and genuine End of the Sciences, is no other, than to enrich human Life with new Inventions, and new Powers; but much the greater Number of the Sciences produce nothing in this Kind; being mere Hirelings, and professorial: unless sometimes, by Accident, an ingenious Artificer, thro' Desire of Glory, endeavours after some new Invention; which he generally pursues to his own Loss; whilst the Bulk of Mankind are so far from proposing to enlarge the Mass of Arts and Sciences, that they only take from the present Collection, or covet so much as they can convert to the Use of their Profession; their own Advantage, Reputation, or some such narrow and inferior Purpose^d. But if any one of the Number does ingenuously

(4.) The End of the Sciences wrong fixed.

^c This coincides with *Aph. 79.*

^d Does not this remain the general Case still?

affect a *Science* for its own Sake ; yet he will be found to pursue a Variety of Thoughts and Doctrines, rather than a severe and rigid Enquiry after the Truth. Or if any exact Enquirer should turn up ; yet even he will propose to himself such a measure of Truth, as may satisfy his own Mind, in assigning the Causes of Things already known ; and not that which may procure fresh Pledges and Earnests of Works, and new Light of Axioms ^w. Therefore, since the *End of the Sciences* has not hitherto been well fixed, and defined, by any one ; we need not wonder if Men have erred and wander'd in the Things subservient to the proper End.

APHORISM LXXXII.

(5.) *A wrong
Way chose.*

8. Again ; if this End had been rightly proposed ; yet Men have chose a very wrong and impassable Way to proceed in. And it may strike any one with Astonishment, who duly considers it, that no Mortal should hitherto have taken Care to open and prepare a Way for the human Understanding, from Sense, and a well conducted Experience ; but that all Things should be left, either to the Darknes of Tradition ; the giddy Agitation, and Whirlwind of Argument ^x ; or else to the uncertain Waves of Accident, or a vague, and uninform'd Experience. Let any one soberly and carefully consider, what that Way is, which Men have accustomed themselves to, in the Enquiry and Discovery of any Thing ; and he will, doubtless, find, that the manner of Invention most commonly used, is simple and unartful ; or no other than this : viz. when a Person goes upon an Enquiry, in the first Place he searches out and peruses what has been said upon it by others ; in the next Place, adds his own Thoughts thereto ; and, lastly, with great Struggle of the Mind, solicits and invokes, as it were, his own Spirit to deliver him Oracles ^y : which is a Method entirely destitute of Foundation, and rolls wholly upon Opinions.

*The logical
Way.*

9. Others may chance to call in the Assistance of Logic ; but this is only a nominal Assistance : for Logic does not discover the Principles and capital *Axioms* upon which Arts are built ^z ; but such only as seem agreeable thereto : and when Men are curious and earnest with it, to procure *Proofs*, and discover *Principles*, or first *Axioms*, it refers them to
Faith,

^w Let the more eminent of the modern Inventors, and Philosophers, be examined by this Rule.

^x See above, *Aph.* 10—14, 20, &c.

^y This is the theoretical Philosopher in his Study, who writes with Struggle and Pangs, out of his own Invention ; instead of consulting Nature and Experience, which alone afford Materials worth the recording.

^z See *Aph.* 13, 14, &c.

Faith, or puts them off with this trite and common Answer, that Every Artist must be believed in his own Art ^a.

10. There remains, therefore, nothing but mere *Experience*; which offering itself, is call'd *Accident*; but when sought, *Experiment*. And this kind of *Experience* is but like loose Twigs ^b; and a bare feeling about for the right Way in the dark: whilst it were much more advisable to wait for Day, or light up a Flambeau; and then pursue the Road ^c. On the other hand, the true Method of *Experience* first procures the Light, then shews the Way, by its Means; beginning with well regulated and digested Experiments, (not such as are wild, scatter'd, and rambling;) and from thence deriving *Axioms*; and, again, from these *Axioms*, well establish'd, Setts of new Experiments ^d. For the *divine Word* itself, did not operate upon the Mass of Things without Order.

11. Men, therefore, may cease to wonder that the *Sciences* are no farther advanced; when they have entirely miss'd the Way, and quite forsaken *Experience*; or else, bewildering themselves therein, have coursed about it, as in a Labyrinth: for it is a well appointed Order, that must lead, in a continued Path, thro' the Thickets of *Experience*, to the open Plains of *Axioms* ^e.

APHORISM LXXXIII.

12. This Mischief has obtain'd a surprizing Spread, from a certain Opinion, or rivetted Conceit, no less tumid than destructive; as if it were a Diminution to the Majesty of the Mind to be long conversant in Experiments, and such Particulars as are subject to Sense, and confined to Matter; especially as these Things are usually laborious in the Enquiry, ignoble in Speculation, unpolite in Discourse, ungenteel in the Practice, infinite in Number, and of little Sublimity: the Issue of all which is, that the true Way has not only been forsaken, but also block'd

(6.) The Neglect of Experiments.

^a This having obtained as an almost general Rule, the natural and mechanical Philosophers, even of the present Time, are obliged to resort to Artizans, Mechanics, and Tradesmen, to discover their Practices; and learn of the Shops what Works are perform'd by Art and Industry: whereas, if Things were in their proper Channel; all Arts, Inventions, and Works, should flow from natural Philosophers; and Life owe those Advantages to them, which it now receives from ingenious and inventive Mechanics. The Consideration hereof seems to have occasion'd that noble Design of Mr. Boyle, to put a Sett of ingenious Youths Apprentices to several Trades; in order, by their Communications, and Discoveries afterwards, to improve the State of Natural Philosophy.

^b Viz. According to the common Expression, a Broom or Faggot unbound; as having little use, till reduced, from their straggling State, into Collections of some Form or Order, and fit for certain Purposes.

^c In allusion to the Light which the Author, in this Piece, endeavours to set up.

^d The Method in doing this, is shewn in the Second Part.

^e See this farther explained, Vol. III. p. 316.

up and obstructed; and Experience not only deserted and ill conducted, but disdain'd ^f.

APHORISM LXXXIV.

(7.) *Regard to Antiquity and Authority.* 13. Again; the Reverence of Antiquity, and the Authority of such as have bore a great Reputation for Philosophy, and thence the current Consent, has withheld, and almost chain'd down Mankind from advancing the Sciences. But of *Consent* we have spoken above ^g.

The vulgar Notion of Antiquity erroneous. 14. The Opinion which Men entertain of Antiquity is a very idle Thing; and almost incongruous to the Word: for the old Age, and Length of Days of the World, should, in reality, be accounted Antiquity; and ought to be attributed to our own Times, not to the Youth of the World, which it enjoyed among the Ancients: for that Age, tho', with respect to us, it be ancient and greater; yet, with regard to the World, it was new and less. And as we justly expect a greater Knowledge of Things, and a riper Judgment, from a Man of Years, than from a Youth, on account of the greater Experience, and the greater Variety and Number of Things seen, heard, and thought of, by the Person in Years; so might much greater Matters be justly expected from the present Age, (if it knew but its own Strength, and would make Trial and apply,) than from former Times: as this is the more advanced Age of the World; and now enrich'd and furnish'd with infinite *Experiments and Observations* ^h.

The Voyages of the Moderns. 15. It must also go for something, that by means of the long Voyages and Travels, so famous in our Times, numerous Things have been procured, and discovered in Nature, for giving new Light to Philosophy: and it would be scandalous for Mankind to have the Tracts of the *material Globe*, its Countries, Seas, and the Heavens themselves, greatly laid open to the View of these Times; and yet the *intellectual World* remain within the narrow Confines of the Inventions of the Ancients ⁱ.

16. 'Tis

^f And surely, if Natural Philosophy has received any Improvement of late, it is principally owing to the greater Reputation which Experience and Practice have gained; and the prosecuting, with some tolerable Care and Order, the Business of Experimenting, in a Variety of Subjects.

^g See *Aph.* 77. See also *Aph.* 55.

^h Let us beware there is no Defect in this Argument. 'Tis to be apprehended that many of the Arts known to the Ancients, are now lost; particularly the ancient *Balisticks*, &c. And even, if all the Knowledge and Discoveries of the Ancients were continued down to us; some will still question, whether the Capacities of Men in later Times are equal to those of former. As to the Point of Capacity; the Author answers, to avoid Dispute, that a Cripple in the right Way may beat a Racer in the wrong; and as to the Knowledge of the Ancients, he allows it to have been great; and that only some of their more superficial and popular *Philosophies* have descended to us. See above, *Aph.* 71. So that we can only judge of what we have: tho' the utmost Diligence should, doubtless, be used to recover all the Arts, Inventions, and Philosophies, that flourished among the Ancients. See the Author's *Sapientia Veterum*.

ⁱ So far as we know them.

16. 'Tis the greatest Weakness to be attributing infinite Things to Authors, whilst we are refusing Justice to the Author of Authors, and all Authority; which is Time: for Truth is justly call'd the Daughter of Time, not of Authority. Whence 'tis no wonder, if these joint Fascinations, viz. of *Authors*, of *Antiquity*, and *Consent*, should so far bind the Faculties of Men as to keep them, like Persons possess'd, from conversing with Things themselves.

The Weakness of admiring Authors.

APHORISM LXXXV.

17. And not only the Admiration of *Antiquity*, *Authority*, and *Consent*, has constrain'd the Industry of Men to acquiesce in Things already discover'd; but also an Admiration of the Works they have long possess'd. For when a Man views that Variety and beautiful *Apparatus* of Things introduced, and provided by the mechanic Arts, for human Uses; he is rather inclin'd to admire the Opulency of Mankind, than entertain a Sense of their Want: not considering that the original Observations of Men, and the Operations of Nature, which proved like the Soul and first Mover of all this Variety¹, were neither numerous, nor derived from any great Depth of Knowledge; and that the rest was owing only to the Patience of Men, and the subtle or regular Motion of the Hand, or Instruments. Thus, for Example, 'tis certainly a very subtle and accurate Piece of Workmanship to make a Clock, that shall seem to imitate the Revolution of the heavenly Bodies, and the Pulsation of the Bodies of Animals, by a regular and successive Motion; and yet this depends upon but one or two *Axioms* of Nature².

(8.) *Admiration of the Works in use.*

18. And if any one shall consider that Subtilty shewn in the liberal Arts; or the Preparation of natural Bodies by the mechanic Arts, and the like; such, for Example, as the Discovery of the celestial Motions; the Notes in Musick; the Letters of the Alphabet, (which to this Day are not used among the *Chinese*;) or, again, in the mechanic Arts, the Productions of *Bacchus* and *Ceres*; that is, the Preparation of Wine, Malt-Liquors, Bread, Pastery, the Furniture of the Table, Distillations, &c. and if, at the same time, he reflect, thro' what a Number of Years all these (except Distillation, which alone is not ancient) are arrived to that Degree of Perfection, wherein we now enjoy them; and yet how little of *Observation*, or of the *Axioms* of Nature, they have in them, (as we before instanced in Clocks;) and how readily, or, as it were, by obvious Occasions, and necessary Considerations, they might be discover'd; will easily cease his Wonder, and rather pity the Condition of Mankind, that

But few Inventions discover'd in proportion to the Time.

¹ Observe how the Author endeavours to break the *Charm*, mention'd in the *Preface* under 4th. 7.

² Viz. The Observations upon which they were formed.

³ Viz. The Law of Pendulums, suppose, and Elasticity.

that for so many Ages there should have been so great a Want and Barrenness of Inventions. Yet all the Discoveries now mention'd ⁿ, are more ancient than Philosophy, and the intellectual Arts: so that, to say the Truth, when the rational and dogmatical Arts came upon the Stage, the Invention of useful Works went off ^o.

*Little Variety
of Matter in
Books.*

19. If a Man turn his Eyes from the Shops to Libraries, he may perhaps be surprized at the immense Variety of Books he finds; but upon examining and diligently weighing their Matters and Contents, he will be struck with Amazement on the other Side; and after finding no End of Repetitions, but that Men continually treat and speak the same Things over and over again, fall from his Admiration of the Variety, into a Wonder at the Want and Scantiness of those Things, which have hitherto deatrain'd and possess'd the Minds of Men ^p.

*The Procedure
of the Alche-
mists.*

20. And again; if any one should condescend to regard such Things as are accounted rather curious than useful; and take a thorough View of the Works of the *Alchemists*, or the Followers of *natural Magic*; he might, perhaps, be at a Difficulty which he should withhold, his Tears, or his Laughter. For the *Alchemist* goes on with an eternal Hope; and where his Matters succeed not, lays the Blame upon his own Errors; and accuses himself, as not having sufficiently understood either the Terms of his Art, or his Author: whence he either hearkens out for Traditions and auricular Whispers; or else fancies he made some Mistake, as to the exact Quantity of the Ingredients, or Nicety of the Experiment; and thus repeats the Operation without End. And if, in the mean time, among all the Chances of Experiments, he throws any which appear either new or useful; he feeds his Mind with these, as so many Earnests; boasts and extols them above measure; and conceives great Hopes of what is behind. It must, indeed, be allow'd that the *Alchemists* have made many Discoveries, and obliged Mankind with useful Inventions; but they are well represented in that Fable of the old Man, who left an Estate to his Children, (buried somewhere or other, he told them, in his Vineyard;) which they, therefore, fell to dig for with great Diligence; whereby, tho' they found no Gold in Substance, yet they received a better Vintage for their Labour.

*The Procedure
of the Follow-
ers of Natural
Magic.*

21. But such as apply to *natural Magic*, and explain every thing by *Sympathies* and *Antipathies*, have, by supine and indolent Conjectures, placed strange Virtues and Operations in Things; and if, at any time, they have produced

ⁿ Except Distillation, which was excepted before.

^o If this, upon a fair and full Enquiry, shall appear to be the Case; it might afford a strong Argument against admitting the rational and dogmatical Arts; or any Philosophy, but the practical and experimental Kind.

^p Hence the Author, in another Place, observes, that there is a great Agreement betwixt the Shops of Artificers, and the Libraries of the Learned; as both make a great Shew of Variety, yet contain nothing but infinite Repetitions of a few Things, or numerous Applications of a few Principles, differently dressed and modelled, according to particular Humours, Fashions, or Exigencies.

produced Works, they are rather suited to Admiration and Strangeness, than to Fruit and Advantage⁹.

22. And for *superstitious Magic*, if we were disposed to speak thereof, it would come first to be observed, that there is only one certain and determinate Kind of Subject, in which the curious and superstitious Arts, thro' all Nations, Ages, and Religions, could take Place, and have any Effect, or impose¹⁰. But of this we say no more. In the mean time, 'tis no wonder if an Imagination of great Plenty has proved a Cause of Want.

APHORISM LXXXVI.

23. This Admiration of Mankind, as to Doctrine and Arts, which is a simple and almost childish Thing in itself, has been increased by the Craft and Artifice of such as treat and deliver the Sciences; who propose them with that State and Affectation, or so finely fashioned; and bring them so dressed upon the Stage, as if they were perfect in every Part; and so many finished Things. For to look upon the Methods and Divisions of these Teachers, they might seem to contain and include every thing that can fall within the Subject; and tho' the Parts are ill fill'd up, and in reality little more than empty Carcasses; yet they pass currently among the Vulgar, as having the Form and Fulness of compleat Sciences¹¹.

(9.) *The Artifice of Teachers and Writers in the Sciences.*

24. But the primitive Enquirers after Truth, with greater Fidelity, and a happier Conduct, used to throw all the Knowledge they determined to collect, and treasure up for use, into *Aphorisms*, or short and loose Sentences; not ranged into Method; without professing or pretending to set down the whole of an Art¹². But, as the Case now stands, 'tis

The abhorrid Way of Writing recommended.

⁹ See *de Augment. Scientiar.* Sect. VI.

¹⁰ The Author appears to mean that the weak, and credulous, are this Subject. He expresses himself, in another Place, thus. The *Magician*, when, according to his own Understanding, he sees some Things effected that are beyond the Power of Nature; and thus supposing her to be once forced and subdued; he adds Wings to his Imagination; and scarce believes the Effect to differ according to the Degree of more and less; and therefore promises himself that he may obtain the greatest Things of all; without considering that they are *Subjects of one peculiar Kind*, wherein Magic and Superstition have had any Power and Influence, thro' all Nations and Ages. See the *Sylva Sylvarum*, under the Articles *Imagination* and *Sympathy*.

¹¹ This Inconvenience is very apt to attend the writing of *Systems*, and Bodies of Sciences; where the Writer having the Matter before him, seldom considers of any thing more than how to give it the best Form, and render it most agreeable to the Reader. This, tho' it may usually be esteem'd a laudable Thing, has yet a pernicious Effect, and doubtless retards the Advancement of the Sciences; whence it should be avoided by Philosophers, and severe Enquirers into Truth, as a kind of Imposture. See *Jschirnbauts. Medicina Mentis* in init. See also *Vol. III.* p. 8, 9, 10.

¹² The Author thus enforces the present Consideration in another Place. The first and most ancient Enquirers after Truth, with more Sincerity, and better Success, threw the Knowledge they gather'd from the Contemplation of Things, and proposed to lay up for Service, into *Aphorisms*, or short and independent Expressions; which shewing Inventions naked as they were, and

'tis no wonder if Men make no farther Progress in those Things, which are deliver'd as if already perfected.

APHORISM LXXXVII.

(10.) *Ostentatious Promises of the Moderns.*

25. Things of Antiquity have also received an additional Reputation and Credit, from the Vanity and Levity of such as offer'd new ones; especially in the effective and operative Part of *Natural Philosophy*. For certain boasting and fantastical Persons, partly thro' Credulity, and partly thro' Imposture, have amused Mankind with great Promises of the *Prolongation of Life*, the *Retardation of old Age*, the *Mitigation of Pain*, the *Repair of natural Defects*, *Cures for the Deceptions of the Senses*, the *Way of bending and exciting Affections*, the *Illumination and Exaltation of the intellectual Faculties*, the *Transmutation of Substances*, the *strengthening and multiplying of Motions at Pleasure*, the *Impressions and Alterations of the Air*, the *bringing down and procuring of celestial Influences*, the *Divination of future Events*, the *Representation of Things remote*, the *Revelation of Secrets*, &c. The Truth is, there seems to be the same Difference in the Doctrines of Philosophy, between these Vanities, and the real Arts; as there is between the historical Narrations of the Exploits of *Julius Cæsar*, or *Alexander the Great*; and the Atchievements of *Amadis de Gaul*, or *Arthur of Britain*. For those celebrated Emperors are found, in Fact, to have accomplish'd greater Things, than the other shadowy Heroes are even feign'd to have done: and yet this, by such Means as are no way fabulous or monstrous. Nor should it detract from the Credibility of real History, that it has sometimes been injured and abused with Fables. In the mean time, 'tis not strange that a great Prejudice should be rais'd against new Proposals, especially those relating to Works, upon account of these Impostors, who have attempted the like; whence the Excess and Disdain of Vanity, have, even at present, left no Spirit for such great Designs.

APHORISM

and at the same time indicating the Spaces that remain'd to be fill'd with Discoveries; they were hence the less deceived, and Mens Thoughts and Minds the more excited to judge, and discover. On the contrary, the present Method is, to place the Sciences in such a Light, as may procure them the most Credit, not excite the Judgment; and, by a severe Authority, to stop Inventions in the Bud: so that the Sciences now descend, as in the Persons of *Master* and *Scholar*, instead of *Inventor* and *Improver*: whence no wonder if they are not advanced.

" *Viz.* Excess on one Side, and Disdain on the other; or on the Side both of Projectors, and Anti-Projectors.

" And under this Disadvantage the Author lay in his great Designs, for enriching the Kingdom by mineral Works; erecting his *Solomon's College*; his Enquiries for prolonging Life; commanding the Winds, and the Weather; his *new Logic*, &c. &c.

APHORISM LXXXVIII.

26. But the Sciences have been much more hurt by Pufillanimité; and ^{(11.) Want of} the Slenderneſs of the Tasks which Men propos'd themſelves: and yet, ^{propoſing wor-} to enhance the Miſchief, this Pufillanimité is not without its Pride and ^{thy Tasks.} Diſdain.

27. For firſt, 'tis a common Excuse with every Artiſt, to lay the Im- ^{Laying the} perfection of his Art, as a Reproach, at the Door of Nature; and ^{Imperfection} what his Art does not perform, to pronounce, from that Art, impossible ^{of Arts to the} in the Nature of Things; and certainly the Art will not be condemned, ^{Charge of} whiſt itſelf is the Judge. Nay, the preſent Philoſophy contains and pa- ^{Nature.} tronizes ſome Opinions, which, if diligently examin'd, wholly tend to perſuade Mankind, that nothing great, or very commanding over Na- ture, can be expected from Art, or the human Powers, (as we inſtanced above, in the Difference betwixt ſolar and culinary Fire, Compoſition, Mixture, &c. *) which, in the reſult, is no other than maliciously to limit Mens Faculties; and to invent, and introduce, an artificial Deſpair, that ſhall not only diſturb and unſettle our Hopes and Expectations, but take away the Motives to Industry, ~~its~~ Sinews, and diſappoint or prevent all the Chances of Experience; whiſt the Artiſt is only ſol- licitous about this, that his Art ſhould be eſteem'd perfect: thus endea- vouring at an exceeding vain and deſtructive Glory, in having it be- lieved, that every Thing not yet diſcover'd and underſtood, is abſolutely im- poſſible to be found out, or known. And if any one applies him- ſelf to Nature, and endeavours to ſtrike out ſomething new; yet he will generally propoſe and fix upon ſome one Invention, without farther Search: For Example, the Nature of the *Loadſtone*, the *Tides*, the *Theory of the Heavens*, and the like; which ſeem to conceal ſome Secret; and have been hitherto unſucceſsfully explained: whereas 'tis, in the higheſt Degree, unſkilful, to examine the Nature of any Thing, in that Thing itſelf. For the ſame Nature, which in ſome Things lies hid and con- cealed, appears open and obvious in others; ſo as to excite Admiration in the one, and to paſs unobſerved in the other: thus the Nature of *Con- ſiſtence* is not taken Notice of in Wood or Stone, but ſlighted under the Term of Solidity, without farther Enquiry into its Avoidance of Sepa- ration, or Solution of Continuity; whiſt the ſame Thing appears ſub- tile, and of deeper Enquiry, in Bubbles of Water, which throw them- ſelves into thin Skins, of a curious hemiſpherical Figure, in order, for the inſtant, to avoid a Solution of Continuity.

* See *App.* 75.

† Some will confine this to the more illiterate Mechanics and Artiſans; and others extend it to the Liberal Sciences, Medicine, Philoſophy, &c.

Secrets in
some Things
lie open in
others.

28. And, again; those very Things which are accounted Secrets, have, in other Cases, a common and manifest Nature; which can never be discover'd, whilst the Experiments and Thoughts of Men run wholly upon them*. And generally those Things are esteem'd new Inventions in mechanical Works, that are no more than better Ways of finishing, adorning, joining, compounding, rendering more commodious, enlarging, or contracting the Bulk of the old ones; and the like*.

Slender Per-
formances
over-rated.

29. So that 'tis no wonder if noble and worthy Inventions, suitable to the Dignity of Mankind, are not brought to Light; whilst Men content and please themselves with such slender and childish Performances; and at the same Time imagine that they perform great Matters by them.

APHORISM LXXXIX.

(12.) Supersti-
tion and Zeal,
being opposite
to Natural
Philosophy.

30. We must not omit, that *Natural Philosophy* has, thro' all Ages, had a troublesome and difficult Adversary to contend with; viz. *Superstition*, and the blind, furious *Zeal of Religion*. For we find among the *Greeks*, that they who first assign'd the natural Causes of Thunder and Storms, whilst the Ears of Men remain'd unaccustom'd to such Explanations, were condemn'd for Impiety against the Gods^b. Nor did those meet with much better Fate from some eminent Fathers of the *Christian Church*; who, upon infallible Demonstration, which no Man in his Senses would now oppose, asserted the spherical Figure of the Earth; and consequently the Existence of *Antipodes*.

Dangerous to
philosophize,
on account of
the School
Theology.

31. And, as Matters now stand, 'tis still more difficult and dangerous to discourse upon Nature, by reason of the *Summaries* and *Methods* of the scholastic Divines; who having imperiously reduced *Theology* to Order, and fashion'd it into an Art, have, at the same time, blended too much of the thorny and contentious *Philosophy of Aristotle* into the Body of Religion^c.

32. And

* Thus *Transmutation*, tho' expressly endeavour'd after, to little purpose in some Cases; yet in others seems to occur almost spontaneously. See *Sylva Sylvarum*, under the Articles *Alterations* and *Transmutations*.

* In another Place the Author observes, that if a Mechanic happens to add some Ornament, and a greater Lustre, to any former Invention; or combines two or three Things, that before were separate; or fits them more commodiously for Practice; or exhibits the Thing either in a greater, or a less Bulk; he presently writes himself in the List of Inventors: whence Men (1.) disdain the Invention of new Arts and Works, as an idle, fruitless, and suspected Endeavour; or (2.) believe that there are noble Inventions discover'd; but that they lie concealed, with the utmost Silence and Caution, in a few Hands; or (3.) take these smaller Additions and Alterations of Inventions, for new Discoveries. All which tends to turn Mens Minds aside from the true and laborious Method of Enquiry; and prevents such Tasks and Discoveries as are worthy of Mankind.

^b See the *Clouds* of *Aristophanes*.

^c See *de Augment. Scientiar.* Sect. XXVIII. This occasion'd the Author a great Difficulty in his Time; tho' he was naturally inclined, and admonish'd by others, to use the utmost Caution against it.

32. And to this Head belongs, tho' in a different respect, the Labour of such as have ventured to deduce and confirm the Truth of the Christian Religion, from the Principles and Authorities of Philosophers: Thus, with great Pomp and Solemnity, celebrating the Inter-Marriage of *Faith* and *Sense*, as a lawful Conjunction; and soothing the Minds of Men with a pleasing Variety of Matter; tho' at the same time rashly and unequally intermixing Things divine and human. But in such Meddles of Divinity and Philosophy, only the Things at present receiv'd in Philosophy are comprehended; whilst new ones, tho' better, are almost quite rejected and excluded^d.

*The Mixture
of Philosophy
with Reli-
gion.*

33. Lastly, we find, thro' the Unskilfulness of certain Divines, that the Passage to any Philosophy, tho' ever so just, is in a manner block'd up: For some weakly suspect, that deep Enquiries into Nature will transgress the Bounds of Sobriety; and injudiciously wresting what is said in Scripture, of those who pry into the *divine Mysteries*, apply it to the Secrets of Nature; from which we are no where forbid. Others, with greater Cunning, conceive, that if the *Means* remain unknown^e, all Things may be the easier managed by the Dexterity of the *Hand*, and the *divining Rod*; which they imagine highly serviceable to Religion: but this is no other than offering to God the *unclean Sacrifice of a Lye*^f. Others dread the Example; lest the Disturbances and Changes in Philosophy should extend to, and terminate in Religion. And others, again, seem afraid, lest something should be found in the Enquiry of Nature, to subvert, or at least undermine Religion; especially among the Ignorant. These two latter Fears appear to us to be deeply tinged with low grovelling Wisdom; as if Men, in their secret Thoughts, cherish'd some Doubt and Distrust about the Strength of Religion, and the Power of Faith over the Senses; and therefore apprehend Danger to it from the Search of Truth, in natural Things: but whoever rightly considers it, will find, that Natural Philosophy is, next after the Word of God, the most certain Cure of Superstition; and the best Support of Faith. Philosophy, therefore, is deservedly appointed as the true Handmaid to Religion; the one manifesting the *Will*, and the other the *Power* of God. For 'twas no Error in him who said, *Ye err, not knowing the Scriptures, and the Power of God*: thus inseparably mixing, and joining together the Information of his *Will*, and the Knowledge of his *Power*. 'Tis, therefore, the less Wonder, that Natural Philosophy has been so little improved, when Religion, whose Power over Mens Minds is exceeding great, has, thro' the Ignorance and unwarrantable Zeal of some, been made to oppose it.

*The Opinion,
that deep na-
tural Enqui-
ries should
subvert Reli-
gion.*

^d See *de Augment. Scientiar.* Sect. XXVIII. and *Supplem.* XVI, XVII.

^e Viz. If Men are kept in Ignorance.

^f For Knowledge can never make Men irreligious; or independent upon God. See *Vol. I.* p. 16—18.

APHORISM XC.

(13.) *Schools
and Academies
proving un-
favourable to
Philosophy.*

34. Again; in the Customs and Institutions of Schools, Universities, Colleges, and the like Conventions, destin'd for the Seats of learned Men, and the Promotion of Knowledge, all Things are found opposite to the Advancement of the Sciences: for the *Readings* and *Exercises* are here so managed, that it cannot easily come into any one's Mind to think of Things out of the common Road. Or if here and there one should venture to use a Liberty of Judging, he can only impose the Task upon himself; without obtaining Assistance from his Fellows: and if he could dispense with this, he will still find his Industry and Resolution a great Hindrance to the raising of his Fortune. For the Studies of Men in such Places are confin'd, and pinned down to the Writings of certain Authors; from which, if any Man happens to differ, he is presently reprehended as a Disturber and an Innovator. But there is surely a great Difference between *Arts* and *Civil Affairs*: for the Danger is not the same from *new Light*, as from *new Commotions*. In Civil Affairs, 'tis true, a Change even for the better is suspected, thro' Fear of Disturbance; because these Affairs depend upon Authority, Consent, Reputation, and Opinion, and not upon Demonstration: But Arts and Sciences should be like Mines, refounding on all Sides with new Works, and farther Progress. And thus it ought to be, according to right Reason; but the Case, in Fact, is quite otherwise. For the above-mentioned Administration and Policy of Schools and Universities, generally opposes and greatly prevents the Improvement of the Sciences^s.

APHORISM XCI.

(14.) *Want
of Rewards.*

35. And tho' this Contrariety should cease; yet 'tis sufficient to check the Progress of the Sciences, that such Endeavours and such Industry are not rewarded^h: for those who cultivate the Sciences, have not the Power of rewarding. The Improvement of the Sciences proceeds from great Capacities; but the Salaries and Rewards for them lie in the Hands of the Vulgar; or such Rulers of State as are rarely Men of considerable Learning. And what is more, such kind of Advancement not only fails of Reward, and Encouragement, but is destitute even of popular Praise; as being above the Reach of the Crowd, and easily beat down and extinguished by the Winds of vulgar Opinion. Whence, again, 'tis no Wonder that this Business has proceeded no better; whilst, instead of Encouragement, it has met with Disesteem.

APHORISM

^s See more upon this Subject, *Vol. I. p. 39—42.*

^h See above, *Apb. 90.*

APHORISM XCII.

36. But the greatest Obstacle of all, to the Progress of the Sciences, (15.) *Despair,* and the Undertaking of new Tasks and Provinces in them, lies in the *and the Sup-* Despair of Mankind, and the Supposition of Impossibility. For prudent *position of Im-* and exact Men, generally distrust such kind of Attempts; upon considering with themselves the Obscurity of Nature, the Shortness of Life, the Fallacy of the Senses, the Weakness of the Judgment, the Difficulties of Experimenting, &c. Whence they conceive, that there are certain Ebbings and Flowings of the Sciences, thro' all the Revolutions of Times and Ages; so as one while to increase and flourish, and another to decline and lie neglected; and, when arrived at one certain State and Degree, to become incapable of rising higher¹. Therefore, if any Man should hope or undertake for the contrary, they think it the Sign of a weak and unripen'd Judgment; and that such Attempts begin with Pleasure, proceed with Difficulty, and end in Confusion.

37. And as these are Thoughts which readily occur to grave and judicious Men; we must indeed beware, lest being our selves caught with the Love of a Thing that has an excellent and beautiful Appearance, we should slacken the Reins of Judgment. We shall, therefore, next proceed, with Care, to examine what Degree of Hope there is of future Success, and from what Quarter it arises; (with the Purpose of rejecting the lighter Gales thereof;) and diligently discuss and weigh those Grounds that appear the strongest. And here *Civil Prudence* also is to be consulted; which distrusts by *Prescription*; and suspects the worst of human Affairs². And whilst we thus enquire into the Grounds of *Hope*, we our selves make no Promises, offer no Violence to the Mind, and lay no Snares for the Judgments of Men: but only lead them by the Hand. *Transition.*

¹ See Sir Thomas Bodley's Letter to the Author, Vol. I. Supplem. V. p. 487.

² See above, App. 75.

S E C T. VI.

*Of the GROUNDS OF HOPE, for the
farther Advancement of PHILOSOPHY
and the SCIENCES.*

APHORISM XCIII.

*The greatest
Motive of
Hope, to be
found in
the fourth
Part of the
Instauration.*

1. **T**HO' the most powerful Motive of *Hope*, will hereafter be deliver'd, (when we shall lead Mankind to Particulars; especially as we propose to digest and range them in our *Tables of Invention*, which principally belong to the *fourth* Part of our general Design^a;) where Things themselves, rather than Hopes, will be offer'd; yet, that all may be done in the smoothest manner, we shall here proceed in our Purpose of preparing the Minds of Men. And in giving them a View of the *Hope* there is for improving the Sciences, consists no small Part of this Preparation; as, without it, all the rest has a greater Tendency to deject Mankind, than raise them to a chearful and industrious Prosecution of Experiments; and only give them a meaner Opinion of the Things they at present enjoy, and a deeper Sense of their own Misfortune. We shall, therefore, here open and propose our Conjectures, for rendering the more favourable Expectations of the Sciences probable; in Imitation of *Columbus*, who, before he undertook his surprizing Expedition thro' the *Atlantic* Ocean, produced his Reasons why he expected to find new Lands and Continents, besides those that were then discover'd: Which Reasons, tho' at first rejected, yet being afterwards confirmed by Experience, were the Cause and Origin of very great Things.

2. We

^a See Vol. III. p. 3—18, &c. &c.

2. We begin with God, the Author of all Good, and the Father of *The Goodness* Lights; from whom the Goodness of this Design manifestly shews it to *of the Design,* proceed. We see in the divine Works, that the smallest Beginnings are *a Motive of* certainly succeeded by the Effects. And what is said of spiritual Things, *Hope for im-* that *the Kingdom of God comes not with Observation*; is also found true in *improving* every great Work of divine Providence; where all things go quietly on, *Philosophy.* without Noise or Bustle: so that the Whole is accomplish'd, before Men imagined or took Notice that it was in hand. And we should here remember the Prophecy of *Daniel*, concerning the latter Ages of the World: *Many shall go to and fro upon the Earth, and Knowledge shall be increased:* Thereby plainly intimating it to be the Design of Providence, that when the World was laid open to a general Intercourse; as by our numerous long Voyages it now begins to be; at the same Time also the Sciences should receive Increase^b.

APHORISM XCIV.

3. A capital Reason of our Hope, may be also derived from the Er- *The Errors of* rors of past Times; and the Ways that still remain untried. The fol- *the Ancients* lowing Reprehension of a civil State, that had shewn little Conduct in *to be removed,* in its Affairs, is excellent^c. "What, with regard to Times past, is the *and new Ways* " worst; should, for the Time to come, be esteem'd the best. For if *to be tried.* " you had perform'd your Duty to the full, and yet your Affairs had " gone backwards; there would have been no *Hopes* of their Amend- " ment: but, as the bad Posture of your Affairs proceeds, not from Ne- " cessity, but from your own Errors; there is room to *hope*, that when " those Errors are forsaken, or corrected, a great Change for the better " may ensue." In like manner, if Mankind had, for so many Ages, held on in the true Course of discovering and improving the Sciences, and yet could have advanced them no higher; it would indeed be bold and presumptuous, to believe them capable of farther Improvement: but if the Way itself has been mistaken^d; and the Labour of Mankind been bestowed where it ought not; it follows, that the Difficulty does not arise from hence, that Things lie out of our Reach; but from the Understanding itself, its manner of Use, and Application; which may still be remedied^e. It were, therefore, advisable to enumerate these very Errors: for so many Impediments as past Errors have proved, so many Arguments there are

^a We may now be enabled, in some measure, to judge how far these Grounds of Hope were solid, and well laid. Certainly a great Revolution in Philosophy has gradually ensued: upon the Endeavours of the Author; and Philosophers have been insensibly drawn off from *Speculation and Theory*, to *Practice and Experience*: whence many useful Inventions and Works have proceeded; and more may, perhaps, proceed.

^c The Reprehension of *Demosthenes* to the Athenians.

^d See above, *Aph.* 81, 82, 83, &c.

^e See hereafter, *Aph.* 105, 106. and *Part II.* throughout.

are of future Hope. And tho' we have already touched upon them above ^f; yet we think proper here again to represent them, in a concise, naked, and simple manner.

APHORISM XCV.

The rational and experimental Faculties to be united.

4. Those who have treated the *Sciences*, were either *Empirics*, or *Rationalists*. The *Empirics*, like *Ants*, only lay up *Stores*, and use them; the *Rationalists*, like *Spiders*, spin *Webs* out of themselves: but the *Bee* takes a middle Course, gathering her *Matter* from the *Flowers* of the *Field* and *Garden*; and digesting and preparing it by her native *Powers*. In like manner, that is the true *Office* and *Work* of *Philosophy*, which, not trusting too much to the *Faculties* of the *Mind*, does not lay up the *Matter*, afforded by *Natural History* and *Mechanical Experience*, entire or unfashion'd, in the *Memory*; but treasures it, after being first elaborated and digested in the *Understanding* ^g: and, therefore, we have a good *Ground of Hope*, from the close and strict *Union* of the *experimental* and *rational Faculty*; which have not hitherto been united ^h.

APHORISM XCVI.

Natural Philosophy to be pure.

5. *Natural Philosophy* is not hitherto found pure, but infected and corrupted; in the *School* of *Aristotle*, by *Logic*; in that of *Plato*, by *Theology*; in the second *School* of *Plato*, *Proclus*, and others, by *Mathematics*, which ought only to terminate *Natural Philosophy*, and not to generate or create itⁱ. And, therefore, we have another *Ground of Hope*, from a *Natural Philosophy* pure and unmixed.

APHORISM XCVII.

The Mind to be purged.

6. No *Man* has yet appeared, of so great *Constancy* and *Firmness* of *Mind*, as to impose upon himself the total *Extirpation* of *Theories*, and

^f *See* V. *Aph.* 78—92.

^g This is the *Office* and *Design* of the Author's *Sylva Sylvarum*.

^h The Author, however, cautiously observes in another Place, that there have been some *Empirical Philosophers*, who would not be esteem'd merely *empirical*; and, again, some *Rationalists*, who desired to appear *industrious*, and versed in *Experience*; but that this was only the *Artifice* of certain Men, in endeavouring to raise themselves a *Character* and *Reputation*, for excelling in their different *Sects*: whilst, in reality, the two *Faculties* were ever separated, and almost opposed to each other.

ⁱ See *Vol. I.* p. 90, 91. Here seems to be a *Direction* of great *Moment*, for the *Advancement* of genuine *Philosophy*; which certain Men conceive cannot be so effectually promoted, as when *Mathematics* presides therein, and directs. But this should be farther consider'd; and without all *Partiality* to *Mathematics*: for the *Logician* would have his *Art* preside in *Philosophy*; the *Chemist* his; and the *Metaphysician* is apt to reduce all to *Abstraction* and *Ideas*. Certainly *Philosophy* should refuse none of these *Helps*: but to make choice of any one of them, so as to exclude the rest, must needs occasion a partial *Philosophy*. And hence the *Chemical Philosophies*, the *Logical Philosophies*, the *Metaphysical Philosophies*, and even the *Mathematical Philosophies*, cannot, perhaps, be safely depended upon.

and common Notions; and offer the Understanding quite plain and smooth, to receive Particulars anew: and, therefore, that Knowledge we have, is nothing more than an undigested Heap, and Collection, of much Faith and Accident, mix'd with abundance of childish Notions, imbibed in our Youth^{*}

7. Whence, if any one of riper Years, sound in his Senses, and of a clear, unbiassed Mind, were to apply himself afresh to Experience and Particulars; better Things might be expected from him. And in this respect, we promise our selves the Fate of *Alexander the Great*. But let us not presently be accus'd of Vanity, before the End of the Story be heard; which regards the laying aside of all Vanity.

8. For *Æschines*, speaking of *Alexander* and his Exploits, has these Words: "Surely we lead no mortal Life; but are born to this End alone, that Posterity should relate strange Things of us." As if he esteem'd the Atchievements of *Alexander* miraculous. But *Livy* coming, long afterwards, to consider, and look better into the Thing, said of it, that "*Alexander* did no more than dare to despise Vanities." And such a Judgment we expect Posterity will pass upon us; viz. that we have done no great Matter; but only esteem'd those as little Things, which were accounted great ones. In the mean time, there is no Hope, as we before observed, but in the Regeneration of the Sciences; or the raising and building them up anew, in a certain Order, from Experience: which no one, perhaps, has hitherto attempted or thought of.

Wrong Ideas to be discharged.

The Author compared to Alexander.

APHORISM XCVIII.

9. And for the *Foundations of Experience*; which is the next Thing we must proceed to; they either have not hitherto been laid, or very weakly. Nor has a Collection of Materials, competent either in Number, Kind, or Certainty, for informing the Understanding, or any way sufficient, and worthy of the End proposed, been hitherto made: but, on the contrary, learned Men, after an easy, indolent manner, have received certain Rumours of Experience, and the popular Reports and Tales thereof, both for building and strengthening their Philosophy; and given them the Weight of strong Testimonials: which is just as if a Kingdom should govern itself, not according to the Advices and Intelligences of its Ambassadors, and trusty Officers in foreign Courts; but by the idle Rumours, and common Town-talk of its People. For as to Matter of Experience, there is nothing hitherto well discovered, verified, adjusted, weighed, or measured, in *Natural History*: but whatever is undefin'd and vague in Observation,

A just Foundation not hitherto laid for Experience.

^{*} See above, *Apb.* 19, 27, 28, 29.

[†] Let Antiquity be farther searched upon this Head; as also the *Chinese* History, and the Histories of other ancient Nations consulted; to see if nothing of this kind was ever proposed before. What the Author means, will fully appear hereafter, under *Sect.* VII. but more particularly in the *Second Part* of this Work. See also above, *Apb.* 21.

must needs be fallacious and deceitful in the Information. And if this shall seem surprizing, or the Complaint appear unjust, to any one; whilst so great a Philosopher as *Aristotle*, assisted with the Purse of so great a Prince as *Alexander*, has compiled such an exact *History of Animals*; and whilst some others, with greater Diligence, tho' with less Bustle, have contributed many Things thereto; and whilst others, again, have wrote copious Histories, and Accounts of Plants, Metals, and Fossils; he does not seem sufficiently to understand our Meaning. A *Natural History*, compiled for its own sake, is one thing; and a *Natural History*, collected for informing the Understanding, in order to the building up of *Natural Philosophy*, is another. And these two Histories, as they differ in other respects; so principally in this, that the former contains various Descriptions of natural Bodies, but not Experiments of mechanic Arts. For as, in civil Life, the Temper of a Man, and the secret Dispositions of his Mind and Affections, are better understood, when he is ruffled, than otherwise; so the Secrets of Nature are better got out by the Torturing of Arts, than when suffer'd to take their own course. And, therefore, we may then have good *Hopes of Natural Philosophy*, when *Natural History*, which is the Basis thereof, shall be better supplied; and not before^m.

APHORISM XCIX.

A want of informing Experiments.

10. Again; in the very Stock of *mechanical Experiments*, there is a great Want of such as principally conduce to the Information of the Understanding. For the Mechanic, being no way concerned about the Discovery of Truth, applies his Mind, and stretches out his Hand, to nothing more than is subservient to his Work: but we may then rationally expect to see the *Sciences* farther advanced, when numerous Experiments shall be received, and adopted into *Natural History*, which of themselves are useless; and tend only to the Discovery of *Causes* and *Axioms*: These being what we call *Experiments of Light*, to distinguish them from *Experiments of Profit*. And they have this wonderful Property, that they never deceive or frustrate the Expectation: for being used, not in order to effect any Work; but for disclosing of natural Causes, in certain Particulars; let them fall which way they will, they equally answer the Intention, and solve the Questionⁿ.

APHORISM C.

A better Order in Experimenting.

11. And not only a larger Stock of Experiments is to be sought, and procured, of a different Kind from what has hitherto appeared; but also a quite different Method, Order, and Procedure, is to be introduced, for

^m See Vol. III. p. 8—16.

ⁿ See the *Sylva Sylvarum*, passim.

for continuing and advancing Experience itself: for vague Experience, that pursues nothing but itself, is, as was before observed, a mere groping about in the dark^o; and rather amazes Mankind, than informs them. But when Experience shall be conducted by certain Laws, orderly and consequentially, we may have better Hopes of the Sciences^p.

APHORISM CI.

12. And when a proper Quantity of suitable Materials, for such a *natural* ^{*Inventions to be wrote down.*} and *experimental Philosophy*, as is required for the Work of the Understanding, or the Business of Philosophy, shall be provided, and got ready; yet the Understanding is no way qualified to act upon these Materials spontaneously, and by Memory; no more than a Man should expect to make the Calculations for an Almanack, by the bare Strength of his Memory. Yet *Contemplation* has hitherto been more employ'd in *Invention* than *Writing*: nor is Experience yet made learned^q. But no Invention should be allow'd, or trusted, except in Writing. And when this comes into use, so that Experience may be made a Matter of Learning and Science, we may then have better Hopes^r.

APHORISM CII.

13. Again; the Number, or, as it were, the Army of Particulars, *Historical* ^{*Materials to be tabled.*} being so large, scatter'd, and confus'd, as to distract and confound the Mind; little Good can be expected from the Skirmishes and Sallies of the Understanding; unless it be fitted, and brought close to them, by means of proper, well-disposed, and actuating *Tables of Invention*, containing such Things as belong to the Subject of every Enquiry: and unless the Mind be applied to receive the prepared and digested Assistance they afford^s.

APHORISM CIII.

14. And even when a Stock of Particulars is exactly and orderly placed before us; we must not immediately pass on to the Enquiry, ^{*Axioms to be formed from Experiments.*} and Discovery, of new Particulars, or Works: at least, if this be

^o See above, *Aph. 82.*

^p See *Vol. I. p. 119—125.* and hereafter in the *Second Part*, *passim*.

^q See *SECT. XII. of Learned Experience*, in the *de Augment. Scientiar.*

^r The Caution here laid down is extremely necessary: for the natural Powers of the Mind are so infirm, and weak, as by no means to be trusted, in the Business of Invention, Observation, or Experiment. We see it is common for Men, after some Time, to forget their own Observations and Experiments. Nor is the Memory sufficiently ready and apt to present Things as they may be wanted; nor the Judgment always clear, strong, and in right Order. So that even natural Things, whilst they dwell only in the Memory, or Imagination, seem little better than Phantoms; and require to be distinctly wrote down, for the Service of Philosophy. See hereafter, *Part II. passim.*

^s See hereafter, *Part II. SECT. I.* See also, *Vol. III. p. 320—340.*

done, we must not dwell upon it. We deny not, that, after all the Experiments of every Art shall be collected, digested, and brought to the Knowledge and Judgment of a single Person; many new Discoveries may be made, for the Use and Advantage of Life, thro' the Translation of the Experiments of one Art into another; by means of what we call *Learned Experience*¹: yet less Hope is to be conceived hereof; and a much greater of a *new Light of Axioms*, drawn regularly, and in a certain manner, from those Particulars; so that such *Axioms* may again point out, and lead to new Particulars. For the Way lies not thro' a Plain; but thro' Mountains and Valleys: first ascending to *Axioms*, and then descending to *Works*².

APHORISM CIV.

*Axioms to be
formed in a
new manner.*

15. But the Understanding must not be allowed to leap, or fly from Particulars, to remote, or the most general kind, of *Axioms*, at once; (such as are called the *Principles* of Arts and Things³;) and so prove, and draw out, middle *Axioms*, according to the established Truth of the former; as has hitherto been done by a natural Sally of the Understanding: which is naturally inclined this Way; and has been long trained and accustomed to it, by the Use of those Demonstrations, which proceed upon *Syllogism*⁴. But we may conceive good Hopes of the Sciences, when, by continued Steps, like *real Stairs, uninterrupted or broken*, Men shall ascend from Particulars to lesser *Axioms*; and so on to middle ones; from these again to higher; and lastly, to the most general of all⁵. For the lowest *Axioms* differ not much from bare Experience⁶; and the highest, and most general ones, as they are now esteem'd, prove only notional, theoretical, and of no Solidity; whilst the *middle Axioms*, are the real, the solid, and animated Kind, wherein the Affairs and Fortunes of Men are placed⁷: and above these, come such as are truly the most

¹ See Vol. I. p. 119.

² This will be more fully explained in the *Second Part*. See also Vol. III. p. 316. The Author intended to treat of the *ascending and descending Scale of Axioms*, as a Part of the present Work; but it was never published. And as this Method has not, that we know of, been hitherto tried, it affords an Argument of Hope, that Philosophy and the Sciences may be improved by its means.

³ Suppose the Fiction of the four Peripatetic Elements, which have been made the Basis of Natural Philosophy; the Salt, Sulphur, and Mercury of the Chemists; the *Fuga Vacui*, &c.

⁴ See above, Aph. 13, 14, 19, 20, 25, &c.

⁵ This was the Design of the *Scala Intellectus*: and how the Thing was proposed to be effected, may be seen by Examples in the Author's *History of Life and Death, Winds*, &c. See Vol. III. p. 8—16.

⁶ Such as in *Chemistry*, that animal Substances yield no fixed Salt, by Calcination; in Music, that Concorde intermixed with Discords, make Harmony, &c.

⁷ Such as in *Optics*, that the Angle of Incidence is equal to the Angle of Reflexion, in all Sorts of Surfaces; in *Physica*, Sir Isaac Newton's three *Laws of Motion*, &c.

most general; yet not metaphysical; but justly limited by these intermediate ones.

16. And, therefore, the Understanding does not want Sail, so much as Ballast; to keep it from skipping and bounding: but as this is hitherto a *Desideratum*; when it shall be supplied, we may have better Hopes of the Sciences. *The Understanding to be kept steady.*

APHORISM CV.

17. Again; a different Form of *Induction*, from what has hitherto been used, must be invented, for the raising of *Axioms*: and that not only for the discovering and proving of *Principles*, as they are call'd; but likewise for ascertaining the lesser, middle, and, in short, all kinds of *Axioms*. For that *Induction* which proceeds by simple Enumeration, is a childish Thing; concludes with Uncertainty; stands expos'd to Danger from *contradictory Instances*; and generally pronounces upon scanty *Data*; and such only as are ready at hand^c: but the *Induction* useful in the Discovery and Demonstration of *Arts* and *Sciences*, ought to sift Nature, by proper *Rejections* and *Exclusions*; and then conclude upon *Affirmatives*, after the due Number of *Negatives* are thrown out: a Thing never yet done, nor attempted; unless by *Plato*, who made some little Use of this Form of *Induction*, in the sifting of *Definitions* and *Ideas*^d. But for the just and regular forming of this *Induction*, or *Demonstration*, numerous *Particulars* are required, which have been hitherto thought of by no Mortal; so that greater Pains must be bestowed upon it, than has been bestowed upon *Syllogisms*. And the Assistance of this *Induction* must be used, not only for the discovering of *Axioms*; but also for the defining of *Notions*^e. And in this Business of *Induction* is lodged the greatest Hope of improving the Sciences. *A new Form of Induction.*

APHORISM CVI.

18. But in forming these *Axioms* by this *Induction*, it must be well examin'd and try'd, whether the *Axiom* intended be only adapted, and made according to the measure of those *Particulars* from which it is extracted; *The Caution required in forming Axioms by its Means.*

^a The highest Sort may be call'd *Axioms of Axioms*; and were intended to make the sixth and last Part of the *Instauratio*: but it should seem that Philosophy in the general, or the Author's Method in particular, has not been so far prosecuted as to afford them. For *Approximations* see the imperfect *Canons*, or *Axioms*, at the Close of the *History of Winds, Life and Death*, &c. See also below, *App.* 105, 106.

^c See above, *App.* 13, 17, 19, 20, 24, 25, &c.

^d See above, *App.* 71. This Business of *Induction* is further explained in another Place, thus. Such a Form of *Induction* may be introduced, as to draw some *General Conclusion* from certain *Particulars*; so as at the same Time to demonstrate, that no *contradictory Instances* can be found: for otherwise we might easily pronounce upon too few *Particulars*; and these also of the obvious kind.

^e See above, *App.* 19. See also *Part II. Sect. I. passim*.

tracted; or whether it be larger, and extend beyond them^f. If it be more extensive, regard must be had whether it confirms its own Extensiveness, by promising well; that is, by designing, or pointing out new Particulars: lest otherwise we should either stick in Things already known; or else, with a weak Endeavour, catch at Shadows, and *abstract Forms*; and not grasp such Things as are solid, and fix'd in Matter^g. And, when this Practice shall take Place, a solid Hope will justly attend it.

APHORISM CVII.

Philosophy to be extended to the Sciences, and they brought back to Philosophy.

19. And here should be repeated what we said above, concerning the extending of *Natural Philosophy*, and the bringing *particular Sciences* back again thereto^h; so as to prevent all rending and dismembring of the Sciences. For, unless this be done, there is less Hope of their farther Advancement. And so much for preventing *Despair*, and exciting *Hope*, by way of forsaking or rectifying the Errors of Times past. We proceed next to consider what other Motives of Hope are still behind.

APHORISM CVIII.

Discoveries may be expected from diligent Enquiry.

20. And, first, since many useful Things have been discover'd, as it were by Accident, or Necessity; without any Enquiry, or particular Regard, on the Side of Men; there can be no doubt, but if Men were to look out, and bend their Minds to it, in a certain Method and Order; and not by Fits and Starts; that many more Discoveries would be made. For altho' it may now and then happen, that a Man shall accidentally hit upon a Thing, which had before escaped a great and diligent Search; yet, questionless, the contrary is found in the Whole of Things: and, therefore, many more, and much better Discoveries, are to be expected from the *Reason* and *Industry*, the *Direction* and *Intention*, of Mankind; and that in less Time; than from Chance, the Instinct of Brutes, &c. which have hitherto given the first Hints of Discoveriesⁱ.

APHORISM CIX.

Many unexpected Discoveries made.

21. It may likewise be an Argument of farther *Hope*, that some of the Things already discover'd, are such, as, before their Discovery, did not

^f These are the *Axioms* which the Author principally intends; viz. not such as shall be made to fit a few particular Instances; which are no more than naked Expressions of the Result of certain Facts; but such as shall far exceed the Particulars from whence they were drawn; mark out new Particulars; and lead to greater Discoveries.

^g The Meaning of this is largely explained in the *Second Part* of the present Work.

^h See above, *App.* 80.

ⁱ See above, *App.* 74—85. See also *de Augment. Scientiar.* Sect. XIII.

not enter into Mens Minds even to suspect; so that any one would have despised them as Impossibilities. For it is an usual Way with Mankind, to form Conjectures of new Things, according to the Examples of old ones; and according to the Opinion thence preconceived, and entertained: which is a very fallacious Manner of Judging; for many Particulars derived from the Fountains, or Origins of Things, do not flow in the common Channels^k.

22. So, if a Man, before the *Discovery of Ordnance*, should have thus *Ordnance* described the Thing by its Effects; viz. that there was a certain Way of battering down Walls, and the strongest Fortifications, at a great Distance; Mens Thoughts would have run upon multiplying the Force of their common Engines of War, the known Battering-Rams and Machines, by the Means of Weights, Wheels, and the other mechanical Powers; but scarce any one would have suddenly fallen upon the Invention of raising a fiery Wind, that should blow out of a Tube, with such prodigious, expansive Violence, as to produce the above-mention'd Effect: an obvious Example thereof, having never been seen, unless, perhaps, in Earthquakes, or Thunder-Storms; which, as being grand Works in Nature, Men would presently have rejected as inimitable by Art^l.

23. So, likewise, before the *Invention of Silk*; if any one should have *Silk* said there was a certain Way of making a certain Cloth for Apparel, and Household-Furniture, far exceeding that of Linen, or of Woollen, in Fineness, Strength, Gloss, and Softness; Men would immediately have fallen to conjecturing about some vegetable Silk; the finer Furs of Animals; or the Feathers and Down of Birds; without ever dreaming it should proceed, in such Plenty, from the anniversary Spinning of a small Worm. And if any one should have but dropp'd a Word about such a Worm, he would certainly have been laugh'd at, as the Projector of a new Spider-Work.

24. So, again, if, before the Use of the *Compass*, any Man had said, *The Compass* that a certain Instrument was known, for exactly discovering the Quarters and Points of the Heavens; Mens Invention would hence presently have run upon a more exact Construction of astronomical Instruments; and various Ways of applying them: but that any thing should be found, whose Motion had such a Correspondence to the heavenly Bodies; and yet the Thing itself be no celestial, but only a bare terrestrial, stony, or metallic Substance; would have seem'd absolutely incredible. Yet these, and the like Particulars have been hid from Mankind for so many Ages; and, at last, were not discover'd by Philosophy, or the rational Arts; but by Chance, or Accident: and are of such a Nature, as to appear perfectly foreign, and remote from the Things known before; so that no previous Notion could any way lead to them.

25. Whence

^k See above, *Apb. 24.*

It cannot be too carefully remember'd, that all our Knowledge is in proportion to what we have seen; and not to what is contained in Nature.

*All afford an
Argument of
Hope.*

25. Whence there is great room to expect, that there still remain in the Bosom of Nature, many Things, of excellent Use, that have no manner of Relation, or Analogy, to the Things already discover'd; but lying perfectly out of the Road of the Imagination^m; and which, tho' hitherto unknown, may, doubtless, thro' numerous Revolutions, and Successions of Ages, be one Time or other discover'd; as those above-mention'd have been. But, by the Method we propose, they will more readily, and suddenly, be represented, and anticipatedⁿ, at once^o.

APHORISM CX.

*The obvious
Invention of
Printing, long
unknown.*

26. There are also other Inventions of such a Kind as to shew, that Men may pass by, and overlook, noble Discoveries, which lie before their Feet. For tho' the Invention of *Gunpowder, Silk, the Compass, Sugar, Paper,*

^m Such as the *Bark*, and other Specifics in Medicine; *Phosphorus, Aqua Fortis*, and *Aqua Regia*, in Chemistry; the use of *Lead* and *Antimony*, in Refining, &c.

ⁿ That is, be discover'd, or at least foreseen in the Mind; and the Ways of bringing them into use discern'd; much sooner, than by waiting the ordinary, or slow-paced Course of Things; as is shewn in the *Second Part*.

^o The following Aphorism, found detached in another Place, may deserve to be added here.

1. "It may, perhaps, seem incredible to many, that there should still remain undiscover'd any considerable Number of useful, and beneficial Works; and, again, stranger, that they should hereafter be discover'd, of a sudden: and great, to be sure, will be the Wonder, what these particular Works can be. The direct Answer is, that as the Ignorance of Mankind has led them into Despair; so Knowledge will lead them out of it, into the Regions of Hope, or, rather, of Certainty. But whoever duly considers it, will not find it strange, if our Method of *Interpreting Nature* prevails, that there should, in a small Compass of Time, many new and useful Inventions grow up: for the Births of Knowledge are quick; but the Births of Time are slow. And all the noble Inventions at present in Use, rather proceeded from Accident, and random Trials, or Conjectures; than from any previous Light of Knowledge: whereas the Method of discovering by *Induction* is certain, regular, and direct; without waiting for accidental Hits, and lucky Chances.

2. "And, that there may still remain new Discoveries to be made, at least with regard to our selves, may be fairly argued from hence; that we have no certain Knowledge of all the Inventions known to former Ages, the different Countries of the World, or to all particular Persons. And 'tis certain, were it not for Men, we should never have seen Multitudes of those Things we at present enjoy; especially those vulgarly call'd *Productions of Art*; such as Cloth, Coin, &c. And, to consider it closely, Mankind will be found directed by certain Motions, which they obey in their Discoveries. These Motions, indeed, appear subtle, and hard to be distinctly comprehended, and understood; but are not the less certain for that. And tho', in this Case, Men may be said to obey their own Will; that alters not the Nature of the Thing; for Will, in Man, acts like that call'd Fortune, or Accident, in the World. Such Things, therefore, as require the Assistance of Men to produce, and have hitherto lain quite out of their Road, may be reasonably expected from this new Method, which was unknown to former Ages. For Men sometimes stumble upon Things, before they are aware of them; and go in quest of others, with a certain View; and by such Means as they know: But the Knowledge of the Means for Discovery, has hitherto come by common Observations, and obvious Experiments; whereas our Method tends to produce such Works as have neither an obvious Effect, an obvious Operation, nor an obvious Light; being indeed no other than the *Works of Knowledge*; that are not otherwise producible, than by pure Science, and direct *Interpretation*, neither of them obvious; but removed infinite Degrees from such Things as are common.

Paper, &c. may seem to depend upon certain Properties of Things, and of Nature; yet, doubtless, the Art of *Printing* contains nothing that is not open, and in a manner obvious. But Men not observing, that, tho' it were harder to range the Types of Letters, than to draw Letters by the Hand; yet there was this Difference, that the Types of Letters, being once set, would serve for numerous Impressions; whilst Characters, drawn by the Hand, afforded only a single Writing: or, perhaps, not reflecting that Ink might be so thicken'd, as to stain without flowing, especially if the Face of the Letter stood upwards, and the Impression was struck downwards; the World has, for so many Ages, been without this admirable Invention, which so nearly concerns the Propagation of Knowledge.

27. And, in this Course of Invention, the Mind is frequently so perverse, childish, and contradictory, as first to distrust, and presently after to despise itself: for Men first conceive it incredible, that any such Discovery should be made; but, after it is once made, they again think it incredible, that it was not found out before. And hence we justly deduce another Ground of Hope, that there may still remain a large Treasury of Inventions, deducible not only from the unknown Operations to be hereafter discover'd; but also from transferring, compounding, and applying those already known; by the Means of what we call *Learned Experience* ^{P.}

The perverse Action of the Mind in Inventions.

APHORISM CXI.

28. As a farther Ground of Expectation, Men may please to consider the infinite Expence of Genius, Time, and Treasure, that has been bestow'd upon Things, and Studies, of very little Use and Value; whilst, if but a Part thereof were employ'd upon sound and serviceable Matters, every Difficulty might be conquer'd. And this we think proper to mention here, because we must confess that such a Collection of *Natural and Experimental History*^a, as we have measur'd out in our Mind; and such as really ought to be procured; is a great and royal Work; requiring the Purse of a Prince, and the Assistance of a People.

No great Time and Treasure bestow'd upon Philosophy.

APHORISM CXII.

29. And let no Man shrink at the Multitude of Particulars required; but turn this also to an Argument of Hope. For the particular *Phænomena* of *Arts and Nature*, are all of them like Sheaves, in Comparison of the Inventions of Genius, when disjoin'd, and metaphysically separated from the Evidence of Things. The former Road soon ends in an open Plain; whilst the other has no Issue; but proves an infinite

Experience but little prosecuted.

^a See *de Augment. Scientiar.* Sect. XII.

^b See Vol. III. p. 8—16.

Labyrinth: for Men have hitherto made little Stay in Experience; but pass'd lightly over it; and, on the other hand, spent infinite Time in Contemplation, and the Inventions of Genius: whereas, if we had any one at our Elbow, who could give real Answers to the Questions we should put about Nature; the Discovery of *Causes*, and of all the *Sciences*, would be a Work but of few Years^r.

APHORISM CXIII.

*The Author's
Example pro-
posed.*

30. We judge also, that Mankind may conceive some Hopes from our Example: which we offer, not by way of Ostentation; but because it may be useful. If any one, therefore, should despair, let him consider a Man as much employ'd in *Civil Affairs*, as any other of his Age; a Man of no great Share of Health, who must therefore have lost much Time; and yet, in this Undertaking, he is the first that leads the Way, unassisted by any Mortal: and stedfastly entering the true Path, that was absolutely untrod before; and submitting his Mind to Things; may thus have somewhat advanced the Design. And after this, let him who desponds consider, what may be expected from Men of Leisure; a Conjunction of Labours; and a Succession of Times; proceeding upon the Notices we have given them: especially as it is in a Way, not open only to certain Persons; as the *rational Way* is^r; but where the Labours of all Men, especially in the collecting of Experiments, may be well distributed, employed, and afterwards joined together. For then it is that Mankind will begin to know their own Strength; when not infinite Numbers shall perform the same Things; but some execute one Thing, and some another.

APHORISM CXIV.

*Experiments to
be gone upon.*

31. Lastly; altho' a much weaker and fainter Breeze of Hope should breathe from the *New Continent*^r; yet we must absolutely determine for the *Business of Experimenting*; unless we had rather be quite abject and desponding. For 'tis not equally dangerous to refuse trying, and not to succeed; because Trial has a Chance of procuring a great Advantage; and Failure, the Chance but of a small Loss of Labour. To sum up all; it appears to us, both from what has been said, and what remains unsaid, that there is *Hope* sufficient, not only for a Man of Courage to try, but also for a prudent and sober Man to believe^u.

APHORISM

^r It may here add some Weight, to find that general Scholar, *Dan. Geor. Morbof* of Opinion, that the Author himself *was equal to the Interpretation of all Nature*; if he had not been prevented by *Civil Business*. See *Morbof. Polyhist.* Tom. II. p. 381.

^s See above, *App.* 95. See also *Vol. III.* p. 8-16.

^t The future Prospect of improving the Sciences.

^u But the greatest Argument with most, is good *Success*; which, in this Case, has not been wanting; so as to encourage a farther Prosecution of this Design, upon as just Foundations as the Merchant trafficks.

APHORISM CXV.

32. And thus much, by way of removing *Despair*; (which is a principal Cause of the slow Progress of the Sciences;) at the same Time, finishing what we had to offer concerning the *Signs* and *Causes* of Errors; and the prevailing *Indolence* and *Inactivity* of Men: for as to the more subtle *Causes*, which come not under popular Judgment, or Observation, they should be referr'd to what we have said above, concerning the *Idols of the Mind* ^{Recapitulation.}

33. And here likewise must end that Part of our *INSTAURATION* which regards the pulling down of the old Structure; and which is effected by three Kinds of *Confutation*; viz. (1.) the Confutation of the *natural Reason, when left to itself*; (2.) the Confutation of the *Manner of Demonstrations*; and (3.) the Confutation of the *received Theories, or prevailing Philosophies, and Doctrines*. And this latter *Confutation* has been such as it might be; viz. derived from *Signs*, and the Evidence of *Causes*: for no other Confutation could possibly be used by us, who differ from all others in Principles and Demonstrations ^{The three Confutations used.}

34. It would, therefore, be Time to proceed to our *Rule and Art of The Mind* ^{pre-Interpreting Nature}; did not something still lie in the Way, that requires to be removed. For, as we proposed, by an *Introductory Sett* of *Aphorisms*, to prepare the Mind, as well to understand, as to receive, ^{what is to follow}; having now levell'd and polish'd the Mirror; it remains, that we set it in a right Position, or, as it were, with a benevolent Aspect, to the Things we shall further propose. For, in every new Undertaking, not only the being strongly prepossessed with an inveterate Opinion; but also a false Notion, or Expectation, of what is to follow, proves sufficient to give a Prejudice. We must, therefore, next endeavour to establish a just and true Opinion of the Thing we intend; tho' this Opinion be only temporary, and of Use but till the Thing itself is well understood. ^{Part.}

* See above, *Sett. II.*

* See above, *Aph. 35.*

S E C T. VII.

An IDEA of the NEW METHOD
of Interpreting NATURE.

APHORISM CXVI.

The Author
proposes to
found no Sect.

1. **W**E postulate it of Mankind, that they would not imagine we have any design to form a *Sect in Philosophy*; after the manner of the ancient *Greeks*, or some of the *Moderns*. This is far from our View. Nor do we judge it material to the Fortunes of Mankind, what abstract Opinions any one entertains of the Nature and Principles of Things: no doubt, but many of these may be borrowed from Antiquity; and many new ones be introduced. Thus, for Example, a great Variety of Hypotheses, tho' different among themselves, may well enough solve the *Phænomena* of the heavenly Bodies^b.

Nor regards
Opinions.

2. We are not solicitous about such useless Things, as depend upon Opinion; but, on the contrary, resolve to try whether we can lay any firmer Foundations of the *human Power and Greatness*; and enlarge the Bounds thereof. And, altho' we have, as we conceive, discover'd certain Particulars much more just, true, and advantageous, than those, at present in use; and reserve them for the *Fifth Part* of our whole Design; yet we lay down no one entire, or general *Theory*: for the Time of this is not yet come; nor have we any Hopes of living to finish the *Sixth Part*

^a The Idea given in this Section of the Author's Method of interpreting Nature, is rather a negative than a positive Idea; and formed by excluding what it is not, rather than by directly shewing what it is, which will be the Business of the *Second Part* to unfold. But this Section was necessary, to give some Glimpse of the Thing itself; and prepare the Mind, by degrees, for the great *Light* to be afterwards set up.

^b Observe, that the most elegant and plausible Solutions of *Phænomena*, may be far removed from Truth; and that various, contradictory, and yet equally probable Solutions, may be frequently given of the same Appearance. So that to solve *Phænomena* hypothetically, is a weak and childish Thing in Philosophy; or no better than the Sport of Fancy, and Imagination.

^c See *Vol. III. ad finem.*

Sect. VII. *Interpreting NATURE, explained.*

405

Part of our *INSTAURATION*; which is destined to receive a Philosophy discovered by the genuine *Interpretation of Nature*: but hold it sufficient to carry ourselves soberly and usefully, in moderate Things; and, in the mean Time, to sow the Seeds of pure Truth for Posterity; and not be wanting, in our Assistance, to the first Beginning of great Things.

APHORISM CXVII.

3. And, as we are no Founders of a Sect; so are we no Promisers of particular Works. But, here it may be replied, that we, who so frequently make mention of *Works*, and refer all Things to them, should also give some Earnests of them. But our Design, as we have often said, is not to derive *Works* from *Works*, or *Experiments* from *Experiments*, like Empirics; but, like true Interpreters of Nature, from *Works* and *Experiments*, to derive *Causes* and *Axioms*; and from these *Causes* and *Axioms*, new *Works* and *Experiments*.^a

4. And, altho' any one of tolerable Diligence and Perspicuity, may find in our *Tables of Invention*, which make the fourth Part of our *Instauration*^b; as also from the *Examples of Particulars*, produced in the Second Part of the present Piece; and again, in our *Observations upon the History described in the Third Part*^c; may, every where, find Indications and Designs of numerous noble Works; yet, we ingenuously confess, that the *Natural History* we have hitherto been able to procure, either from Books, or our own Enquiry, is not so copious, and so well verified, as alone to serve for, or even administer to, a genuine *Interpretation of Nature*.^d

5. And therefore, if any one finds himself disposed, and fitted for going upon Mechanical Works; and has a Sagacity at discovering them, from barely conversing with Experiments; we leave him free, and recommend it to his Industry to collect many Particulars from our *History* and *Tables*, as it were in Passage, and apply them to *Works*; after the manner of Interest, for a time, till the Principal may be received^e. But, as ourselves endeavour after greater Things; we here condemn all hasty

Promises no Works.

The Natural History, hitherto collected, unfit for the Purpose.

No Delay made in the Discovery of Works.

^a After the Method of the *Sylva Sylvarum*, *History of Life and Death*, *Winds*, &c. where the Design of each separate Enquiry is to discover *Axioms*, *Causes*, or *Rules of Practice*, for producing Works, in the way of a lively, active, and practical Philosophy.

^b See Vol. III. p. 313—327.

^c Viz. The *Sylva Sylvarum*.

^d This seems no way spoke out of Modesty; but as the real Truth: whence the principal Thing, in order to a just and full *Interpretation of Nature*, is to procure an extensive and faithful *History of Nature and Art*.

^e It is no difficult Matter, from the *Tables*, larger *Observations*, improvable *Axioms*, and variable *Canons*, that occur in the Author's several Pieces, to draw out Models and Patterns of considerable Works; or new practical Arts, of Importance: only, as Philosophy is hitherto very imperfect; these Models will scarce be perfect in the first Essays; but may require many Amendments, before they will answer. Whereas, in the Author's Manner of Proceeding, it would be easy to form a just Notion of the Thing designed; and then directly put it in Practice; without Danger of miscarrying. But there are few that seem to apprehend the Practicability hereof.

hasty and unseasonable Stops; as being like the stopping of *Atalanta*; (a Comparison we frequently use :) for we do not childishly affect golden Fruit; but place the Stress of the whole Course, upon the Victory of *Art* over *Nature*. And we are not so eager, as to reap Moss for Corn; or the tender Blade for Ears; but wait, with Patience, the ripeness of the *Harvest*¹.

APHORISM CXVIII.

Supposing false
Facts in a Na-
tural History.

6. And some, without doubt, upon reading our *History* and *Tables of Invention*, will meet with Experiments not well verified, or even absolutely false; and may thence, perhaps, be apt to suspect, that our Inventions are built upon doubtful Principles, and erroneous Foundations. But this is nothing: for such Slips must necessarily happen in the Beginning. 'Tis but as if here and there a Letter should be misplaced, or mistaken, in a Writing, or printed Book; which does not, usually, much interrupt the Reader: as such Errors are easily corrected, from the Sense of the Place. In the same manner, let Men observe, that Experiments may be falsely believed, and received in *Natural History*; and yet soon after be expunged and rejected, when *Causes* and *Axioms* are discovered². The 'tis true, that if there shall be many, and frequent, and continued Errors, in a *Natural* and *Experimental History*, they cannot be corrected by any Felicity of Art or Genius: and therefore, if in our *Natural History*, which is collected, and examined, with so much Diligence, so rigorous, and, as it were, with so religious a Severity, there should sometimes happen any Falsity, or Mistake, with regard to Particulars; what must be thought of the *common Natural History*, which, in comparison of ours, is so negligent and remiss; or, what of the *Philosophy*, and the *Sciences*, built upon such Quicksands³? Let no one, therefore, be concerned, if our History has its Errors.

APHORISM CXIX.

Trite and vul-
gar Particu-
lars.

7. There will also occur, in our *History* and *Experiments*, many Things that appear at first Sight; (1.) trifling and vulgar; (2.) filthy, fordid, and unpolite; (3.) too subtle, and merely speculative, or, as if it were use-
less:

¹ See the Fable of *Atalanta* explained, in the *Sapientia Veterum*.

² It must be carefully observed, that even a large Number of Errors, or Falsities, in a *Natural History*, designed for the Foundation of *Philosophy*, would not render it useless for the Purpose; unless the Number of Errors should exceed the Number of Truths, it contained: for in that Case, indeed, the *Causes*, here mention'd, would be wrong assigned; and the *Axioms* erroneous. But this cannot happen, where more Truth than Falsity prevails; and a few *Causes* and *Axioms*, discover'd and form'd, tho' but with tolerable Exactness, may discover the Depravity, or Errors, of particular Facts and Experiments. This will appear plainer in the *Second Part* of the present Work.

³ The Case requires no more than *Argumenta ad Hominem*. See the *Preface* to Vol. III.

less: which may disgust, and alienate the Minds of Men, from considering them^m.

8. (1.) But, as for what our History may contain of *Vulgar*; let Men reflect, that they hitherto, usually, do little more than refer and accommodate the *Causes* of such Things as are rare, to such as are more common; without searching for the *Causes* of those that frequently happen; but only receive them as granted and allowed.

9. Thus they seek not the *Causes* of Gravity, of the Celestial Motions, of Heat, Cold, Light, Hardness, Softness, Rarity, Density, Fluidity, Consistence, Animation, Inanimation, Similarity, Dissimilarity, Organization, &c. but discourse and judge of these, as of Things evident, manifest and received; and thence of others, which occur less frequently, and familiarly.

10. But, as we are well apprized, that no Judgment can be made of uncommon and remarkable Things; much less that any new ones should be brought to Light; unless the *Causes*, and the *Causes of the Causes* of common Things, are justly examined and discovered; we are necessarily obliged to receive the commonest Things of all, into our History. And, indeed, we find nothing proves more prejudicial to *Philosophy*, than that such Things as are obvious, and often occur, should not arrest and detain the Consideration of Mankind; but are only received transiently, without enquiring into their *Causes*: whence *Information is not so frequently wanted in Things unknown; as Attention in such as are known.*

APHORISM CXX.

11. (2.) But for unpolite, or even fordid Particularsⁿ, which, as *Pliny* *Such as are disagreeable.* observes, require an Apology for being mentioned; even these ought to be received into a *Natural History*, no less than the most rich and delicate: for *Natural History* is not defiled by them, any more than the Sun, by shining alike upon the Palace and the Privy. And we do not endeavour to build a Capitol, or erect a Pyramid, to the Glory of Mankind; but to found a Temple, in Imitation of the World, and consecrate it to the Human Understanding: so that we must frame our Model accordingly. For whatever is worthy of Existence, is worthy of our Knowledge, which is the Image of Existence: but ignoble Things exist, as well as the noble. Nay, as some excrementitious Matters, for Example, Musk, Civet, &c. sometimes produce excellent Odours; so fordid Instances sometimes afford great Light and Information^o. But enough of this; as such a Delicacy is perfectly childish and effeminate.

APHORISM

ⁿ Let this be understood of Objections made to the Author's *Sylva Sylvarum*.

^a Such, for Example, as Observations and Experiments upon Putrefaction, the Excrements of Animals, &c.

^o The Reader of the *Sylva Sylvarum*, &c. will find many Things of this Kind, that here seem at once sufficiently apologized for.

APHORISM CXXI.

*Too curious, or
subtile.*

12. (3.) It deserves a much closer Consideration, that many Particulars in our *Natural History* will, to an ordinary Capacity, or even to any Mind accustomed only to the present Philosophy, appear like certain laboured, useleſs Subtilties: and therefore, this Objection deſerves a primary Regard. We have already obſerved, that at the Beginning, and for a Time, we ſeek Experiments that may afford Light, not Profit: in Imitation of the Creator, who, as we muſt often repeat, produced nothing but Light for the firſt Day's Work.

13. And to pretend that theſe ſubtile Things are Uſeleſs, ſeems like imagining, that Light has no Uſe; becauſe it is not a ſolid, or tangible Body. And, in reality, the Knowledge of ſimple Natures^p, well examined and defined, is like Light; and illuminates all the dark Reſſeſſes of Works: and tho' of no great Uſe in itſelf, yet potentially includes, and draws after it, whole Troops and Armies of *Works*, and Fountains of the nobleſt *Axioms*^q. So the Letters of the Alphabet ſeparately, and of themſelves, are inſignificative and uſeleſs; yet prove like firſt Matter in the Formation, or Composition, of all Speech and Diſcourſe. Even the Seeds of Things, tho' of ſuch great Efficacy, are uſeleſs, without the proper Treatment; and the ſcattered Rays of Light itſelf, unleſs brought cloſe together, do not impart their Virtue.

14. But if any one is offended at *Speculative Subtilties*; what would he ſay to the Schoolmen, who have given into Subtilties without End? And yet theſe Subtilties were about Words, or at leaſt *vulgar Notions*, which comes to the ſame Thing; and not about Nature; and have proved alſo as uſeleſs in their Conſequence, as in their Origin; being not of that Kind, to be uſeleſs for the preſent, but infinitely uſeful in future; as thoſe are whereof we now ſpeak. And Mankind may be certain of this, that all Subtilty of Diſpute, and Reasoning of the Mind, if uſed only after *Axioms* are diſcovered, comes too late, and out of Season; and that the true, proper, or at leaſt the principal Time for Subtilty, is in contemplating Experience, and forming *Axioms* from it: for that other Kind of Subtilty catches at Nature, without ever taking hold of her. And what is uſually ſaid of Opportunity, or Fortune, holds perfectly true, if transferred to Nature; viz. that *ſhe has Locks before, but none behind*.

15. Laſtly;

^p Such as Heat, Cold, Gravity, Fluidity, &c.

^q See Vol. I. p. 84.

^r This alone is what properly deſerves the Name of *Theory* in Philosophy; that is, the viewing, or conſidering in the Mind, how Things are in Nature: and thence forming *Axioms*, or *Rules of Praſtice*, for producing Works and Effects. For want of attending to this fundamental Point; Men are apt to imagine, that *Philology* is a light, airy Thing, wherein every one may amuſe himſelf, by raiſing Hypotheſes, and building Syſtems, without the Drudgery of conſulting Nature, and Experience. But let it be well remember'd, that the *End of Philology*, is *Praſtice*; or, that Philosophy is no farther of Uſe, than as it may be made operative.

15. Lastly; with relation to this Contempt of *Natural History*, on account of its containing Things that are vulgar, ignoble, subtle, or useless in their Origins, we should here consider, as an Oracle, the Saying of the poor Woman to the haughty Prince, who rejected her Petition, as a thing below his Dignity to take notice of; *Then cease to Reign*: for, 'tis certain, that whoever will not attend to Matters of this Kind, as if they were too minute or trifling, shall never obtain Command or Rule over Nature^a.

APHORISM CXXII.

16. It may also seem a strange and shocking Thing, that we should at once reject all the Sciences, and all Authors, at a Stroke; without admitting any one of the Ancients to assist, or defend us; but trust, as it were, to our own single Strength.

The Objection of rejecting the Ancients, and all the Sciences.

17. We are well aware, that if we were any way disposed to act sincerely, it would not be difficult for us to attribute what we produce, either to the early Ages^b, (when, perhaps, the Knowledge of Nature flourished more, tho' with less Pomp, than after it came into the Flutes and Trumpets of the *Greeks*,) or, even in certain Particulars, to some of the *Greeks* themselves; and thence derive Authority and Honour to our Inventions; after the manner of new raised Persons, who fetch their Nobility from some ancient Line, by the favour of Genealogies and Descents. But relying wholly upon the Evidence of Things, we reject all *Stratagem* and *Imposture*^c; and judge it of no greater Moment to the Business in hand, whether what shall be now discovered was known to the Ancients, and by the Vicissitude of Things, and Ages, is made to set and rise; than to be solicitous, whether *America* is the Island *Atlantis*, mentioned by *Plato*, and known to the Ancients; or whether

Answer'd, as to rejecting Antiquity.

^a This whole *Aphorism* will, if duly consider'd, appear self-evident. If any farther Illustration be required, see *Vol. III. p. 8—16.*

^b This might have been an easy Artifice for the Author; considering how well versed he was in Antiquity; and what a Talent he had at explaining the *Mythology* thereof: but this would, indeed, have been an Imposition, or Imposture; since no evident Signs of any such Inductive Method, as that he proposes, are found in the Ancients. But tho' the Author does not use this Artifice; 'tis certain he has used a particular Art, in procuring Credit and Reputation to his Inventions. But what kind of Art this is, deserves, perhaps, like the Art of Government, to be in some measure concealed. Certainly the Subtilty of the Serpent, may be joined with the Innocence of the Dove. See hereafter, *Apb. 128.*

^c In another Place, the Author mentions, that if he were disposed to deal collusively with Mankind; it would be no difficult Matter to persuade them, that the ancient Philosophers, long before the Times of the *Greeks*, had a much deeper Knowledge of Nature; and thence artificially insinuate, that they prosecuted Enquiries in the Method himself proposes: whence he imagines he might have gained over to his Side, all the Admirers of Antiquity; or those who rest upon Authorities; which are a large Number; and thus have found the less Opposition in his promoting his grand Design. But tho' himself appears to have conceived highly of the Knowledge of the earliest Ages of the World; as we find by his *Picce de Sapientia Veterum*; yet he rejects this Artifice as dishonest.

All Authors
and the Sci-
ences.

it were first discovered by *Columbus*: for the *Discovery of Things*, is to be derived from the *Light of Nature*; and not from the *Darkness of Antiquity*.*

18. But as to the general Censure, of striking out all Authorities and all the Sciences, at once; certainly, whoever considers it rightly, will find this Procedure more rational, and more modest, than to have done the Thing but in part. For if Errors had not been rooted in Mens first Notions; some Things, justly discovered, might have rectified others: but as Errors have been fundamental; and of such a Kind, that Men have rather neglected and passed Things over, than form'd a wrong or false Judgment about them; 'tis no wonder if they have not obtained what they never had in view; not arrived at the End they never propos'd; nor performed the Course which they never enter'd^x.

The Accusation
of Insolence,
answer'd.

19. And as to the Point of *Insolence*; 'tis true, that if one Man should, by the Steadiness of his Hand, and the Strength of his Eye, pretend to draw a more perfect Right Line, or Circle, than another, there would then be a Competition in Excellence; but for a Man to assert, that by the Ruler, or Compass, he can draw a more perfect Line, or Circle, than another by the sole Use of his Hand and Eye, is surely no great matter of Ostentation. And this holds good, not only in our present, first Attempt; but regards those also who shall endeavour to improve it after us: for our *Way of Discovering the Sciences*, almost levels the Capacities of Men; and leaves little room for Excellence; as it performs all Things by sure Rules and Demonstrations: and therefore, these Discoveries of ours, are, as we have often said, rather owing to *Felicity*, than any great *Talent*; and are rather the Production of *Time*, than of *Genius*. For there is, doubtless, no less of Accident in the Thoughts, than in the Works and Actions of Men.

APHORISM CXXIII.

The Reason of
the Author's
differing from
others.

20. And therefore we may say of our selves, what was formerly said in the way of Pleasantry; that '*'tis impossible those who drink Water, should have the same Sentiments with those that drink Wine*'. For all Mankind, both Ancients and Moderns, have drank a crude Liquor in the Sciences;

as

* Notwithstanding the high Opinion which the Author entertain'd of *Antiquity*, he tells us in another Place, that, after having examined all the Sects of Philosophy among the *Greeks*, and other Nations; he turn'd his Eyes upon early Antiquity; which he found as a remote Tract, cover'd with Clouds, and hid in Obscurity.

x This Sentiment is differently express'd in another Place; thus. "As to the Rejection of former Doctrines, this must be understood only of Opinions; and not as derogating from the Genius, or Labours, of the Authors that have gone before us. For the greater Genius any Man has, and the more Pains he takes, after having left the Light and History of Nature, and the Evidence of Particulars; into the more dark and intricate Dens and Dungeons of Fictions, and Idols, he runs, and becomes involved.

y. The Saying of *Philocrates*, when he differ'd from *Demosthenes*; viz. *Do not wonder, Athenians, that I differ from Demosthenes: for he drinks Water, and I drink Wine.*

as a Water that either flowed spontaneously from the Understanding; or was drawn out of the Well, by the Wheels of Logic: whilst we drink a Liquor, and offer it to others, prepared from an infinite Number of Grapes, ripe and seasonably gathered, in Clusters; somewhat squeezed in the Press; and, lastly, purged and clarified in the Vessel^a. Whence 'tis no wonder if we differ from others.

APHORISM CXXIV.

21. It will also, doubtless, be observed of us, that our selves have not proposed the true, and best End, or Scope of the Sciences; (the Thing we censure in others;) as the Contemplation of Truth is of greater Dignity and Sublimity, than all Utility, and Greatness of Works; whilst the long and solicitous dwelling in Matter, Experience, and the Uncertainty of Particulars, which we recommend, fixes the Mind to Earth; or rather sinks it into an Abyss of Confusion and Perturbation: at the same Time, driving and keeping it aloof from the Serenity and Tranquillity of a much diviner State, that of *abstract Wisdom*.

The Objection, that the present Design draws away from the abstract Contemplation of Truth.

22. We willingly allow the Force of this Argument; and above all Things, endeavour after what it intimates and requires. For we would place a true Model of the World in the *human Understanding*, such as the World is found to be; and not such as any ones Reason might make it. And this cannot be done, without first very carefully dissecting and anatomizing the World. But for those ridiculous and Mock-models of Worlds, which the Fancies of Men have formed in Philosophies, we reject them absolutely^a: and therefore, let Men well consider, and understand, the *difference there is between the Idols of the human Mind, and the Ideas of the divine Mind*; the former being no more than arbitrary Abstractions; but the other, the true Signatures of the Creator upon the Creatures, as impressed and limited in Matter, by true and exact Lines^b. And therefore, *Truth* and *Utility*, are here the very

Answer'd.

^a The Allegory is not difficult to interpret. The spontaneous Water of the Understanding, is the natural, unassisted human Reason; in the ordinary Way of exercising its Talent. The Water drawn by the Wheels of Logic, is chiefly such Doctrine as we find in *Aristotle*, his Commentators, and Followers; but the Wine of the Author, is the Knowledge gained from a large Number of attentive Observations made upon Nature; and a Variety of careful Experiments; or a *Sylva* of Matter, collected with Choice, and Judgment; ruminated upon in the Mind, and somewhat digested, and formed into *Axioms*, and *Rules of Practice*.

^b Such, suppose, as the Categorical World of *Aristotle*, the World of *Epicurus*, the *Platonical* World, and, of later Date, the *Cartesian* World, &c. almost every Philosopher pretending to model the World in his own manner; or to shew, if he had been the Creator, how wisely he would have made it. But to find out what the World is in itself, as the Author of Nature has made it, is the Thing here proposed.

^c *Viz.* Things themselves, with their Differences, Relations, Dependencies, &c.

Things required: and Works should be more esteemed, as they are Pledges of Truth, than as they are Useful in Life^c.

APHORISM CXXV.

That, after all, some former Philosophies may be fallen upon.

23. It may, perhaps, be likewise objected, that we are only doing what has been done before; that the Ancients proceeded in the same Way that we do; and, and therefore, that we shall probably, after all this Struggle and Striving, but at length come to some one or other of those Philosophies, which prevail'd among the Ancients: for, that they, in the Beginnings of their Contemplations, procured a large Stock of Examples and Particulars; digested them into Registers, Common-place Books, and Titles; and thence composed their Philosophies, and their Arts; thus pronouncing upon full Discovery: that they added Examples occasionally, by way of Confirmation, and as a Help to Instruction; but thought it needless, and burthensome, to publish their Notes, Memoirs, and Common-place Books of Particulars; herein following the Example of Builders, who, after they have erected an Edifice, take down the Ladders and the Scaffolding, and remove them from Sight.

Answer'd.

24. It is true, one cannot easily believe that the Ancients should have proceeded otherwise: but unless we forget what has been above delivered, this Objection, or Scruple, is easily removed. For, we confess, that the Ancients had a *Form of Enquiry and Discovery*; and their Writings shew it: but this Form, was no other than flying from certain *particular Examples*, with the Assistance of common Notions, (and, perhaps, some favourite Part of the received Opinions,) to the most general *Conclusions*, or *Principles of the Sciences*; from the fixed and undisturbed Truth whereof, they drew out, and proved *inferior Conclusions*, by *intermediate Propositions*; and built their Arts of these Materials: and if new Particulars, and Examples arose, or were produced, to oppose their established Doctrine;

^c Observe, that Works, in the Author's Sense, being derived from a Knowledge of Nature; are Proofs that Nature is understood, so far as regards the Work effected: For Works cannot be performed, without knowing how to perform them. And tho' this be a valuable Fruit of Knowledge, yet it is not the only one; but the Contemplation of the Truth, hereby confirmed to the Mind, raises in it that Veneration, which is due to the Author of Nature; and wherein the Perfection of the human Intellect seems to consist. To this Purpose, the Author adds, in another Place: If any one, delighted with the Love and Veneration of Contemplation, should think the frequent and honourable mention we made of Works, sounds harsh and disagreeable; let him assure himself, that he acts contrary to his own Desires; for in Nature, Works are not only beneficial to Life, but the Token of Truth. And as it is justly required in Religion, that Faith should be demonstrated by Works; so it is congruous in Natural Philosophy, that Knowledge also should be shewn, and demonstrated by Works: For Truth is more manifested and confirm'd by the Indication of Works, than by Arguments; or even than by Sense. So that *the State and Condition of Men is improved by the very same Means that improve the Mind*. We, therefore, judge, that what we have said of the Dignity and Excellence of Works, and the End in View, is not equal to, but comes far short of the Truth. See *Aph.* 129. §. 33.

Doctrine; they either made them square, by subtle Distinctions, or accommodated Explanations of their own Rules; or else, in a gross manner, struck them out by Exceptions: at the same Time, laboriously and obstinately wresting, and fitting the more tractable Particulars to their own Principles. We must add, that neither their *Natural History*, nor *Experience*, was any way such as the Case required; and that their Method of bounding at once to the most *general Conclusions*, was the Bane of Philosophy^d.

APHORISM CXXVI.

24. It may also be objected, that as we disallow a Liberty of Pronoun-^{The Charge of} cing, and laying down sure Principles, till, by intermediate Steps, we ^{Scepticism.} shall have regularly come to the most universal Conclusions; we patronize a Suspension of the Judgment, and bring all to a State of Scepticism. The Truth is, we intend and propose, not the Art of Doubting, ^{Answer'd.} in general; but the *Art of Doubting, properly*: for we do not detract from, but administer to the Sense; and do not despise, but regulate the Understanding. And 'tis better to know so much as is necessary, and yet not think ourselves to know all; than to think that we know all, and yet remain ignorant of that which is necessary^e.

APHORISM CXXVII.

25. It may likewise be doubted, whether we speak only of perfecting ^{That the pre-} *Natural Philosophy*, in our manner; or of the other Sciences also; as *Logic*, ^{sent Design} *Ethics*, *Politics*, &c. Our Answer is, that what we here deliver re- ^{regards the} *Logic*, which governs Things by ^{Whole of Phi-} *Syllogism*, belongs not only to the natural Sciences, but to all; so our *new Logic*, which proceeds by Induction, comprehends every Thing. For we design and draw up *Histories*, and *Tables of Invention*, (1.) for the Passions of *Anger*, *Fear*, *Modesty*, and the like; (2.) for Models of Government and Civil Affairs; and, (3.) for the mental Actions of the Memory, Composition, Division, Judgment, &c. (4.) for Heat, Cold, Light, Vegetation, &c. But as our *Method of Interpretation*, after our *History* shall be once procured, and prepared, does not, like the *common Logic*, regard only the Motions and Reasonings of the Mind, but likewise the Nature of Things; so we conduct the Mind, in such a manner, as that it may, in every respect, properly apply itself to the Nature of Things: and therefore shall deliver many different Precepts, in the *Doctrine of Interpretation*, which may, in some Measure, relate to the Quality and Condition of the Subject enquired into, and the Manner of *Invention*^f.

APHORISM

^d See above *Sett. I. and II. passim*.

^e See the *de Augment. Scientiar.* p. 118.

^f A considerable Part of this Direction comes in the *Second Part* of the present Work. And that the Author extended his View, and fitted his new *Logic*, to the Purposes not only of *Phy-*
tics,

APHORISM CXXVIII.

*The Design,
not to abolish
the present
Arts and Sci-
ences.*

26. But no one, sure, can suspect, that we desire to destroy and demolish the *Philosophy*, the *Arts*, and the *Sciences*, at present in Use; for, on the contrary, we embrace their Use, and willingly pay them all due Honour and Observance. And, indeed, we would no ways hinder them from being used in maintaining Disputes, adorning Discourses, and serving in the professory Offices, and short Methods of acting in Civil Life; or, again, from being received, like Coin, by the common Consent of Mankind. For we openly declare, that the Things we offer, are not very conducive to these Purposes; as they cannot be brought down to vulgar Capacities, otherwise than by Effects and Works. And how sincerely we profess this Affection and Good-will towards the *Sciences* already received, our former *Attempt for their Advancement*, may save us the Trouble of repeating. But this we firmly and expressly aver, that by the Methods now in Use, no great Progress can be made in the contemplative and doctrinal *Sciences*^a; nor they possibly be employ'd for the enlarging and extending of Works^b.

APHORISM

tics, but universal Philosophy, and the whole Body of Arts and Sciences, appears from his *de Augmentis Scientiarum*, and *Sylva Sylvarum*; as well as from the present Piece, and the particular Enquiries himself has begun; such as the *History of Life and Death*, the *History of Winds*, the *History of Astronomy*, the *History of Philosophy*, the *History of Authors*, *Discourses of War*, *Government*, *Morality*, *Oeconomy*, &c. So that the Method of working by *Tables* and *Induction*, seems excellently fitted for the due and commodious Prosecution of all Kinds of Enquiries.

^a See Vol. I. p. 10—16. & *alibi passim*.

^b This seems the proper Place wherein to insert, and preserve, a few *Aphorisms*, belonging to the present Subject, that were found scatter'd in other Parts of the Author's Works.

1. "But if any one shall think it needless in us, to bestow so much Pains and Diligence, in preparing the Minds of Men; or imagine, that we do it, in some measure, to shew our Parts and Learning; and, therefore, had rather, without all Circumlocution, and preparatory Discourse, be told the Thing itself, directly, in few Words: We answer, that we could wish, for the Good of Mankind, this were the Case; or that it were as easy to surmount the Difficulties, and remove the Impediments in our Way, as it is for us to lay aside empty Pride, and Ostentation. But we desire Mankind should know, that we have had some Experience of the Way, in this great Solitude we are entering; as the Subject we have now in hand absolutely requires we should; and that we would by no means expose or betray such a Subject, thro' a Want of Skill to treat and deliver it. We must, therefore, assure them, from a thorough Consideration and Insight both of Things, and the Minds of Men, that we find it almost harder to gain Access to the Mind, than to Things; and that we find the Labour and Difficulty of *Delivering*, not much less than of *Discovering*. So that we are here obliged to practice, what is almost a new Thing in intellectual Matters, Complaisance, or Courtship; and at once to bear the Load, not only of our own Thoughts, but those of other Men. For the only way of subverting the *Idols* of Vanity, is by approaching them obsequiously; and not by rushing in upon them with Violence, and Fury.

2. "And this does not wholly happen from hence, that Men are captivated with the Admiration of Authors; or swollen with their own Conceits; or because, thro' Custom, and Prejudice, they will not be impartial: for, tho' a Man would very gladly impose a just and even

APHORISM CXXIX.

27. It remains, that we say something to the Excellency of the End *The Excellency of the End in View.* in View; which, if said before, might have seemed no more than a good Wish: but now, when the Grounds of Hope are laid, and unjust Prejudices removed, it may, perhaps, have greater Weight. If, indeed, we had perfected the whole Design; and did not desire others to share the Labour with us; we wou'd have dropp'd every thing of

" even Temper upon himself; and, as it were, forswear all Prejudice; yet even such a Disposition of Mind cannot be trusted. For *no Man has a Command over his own Understanding, which depends not upon his Will: Nor is the Spirit of the Philosophers, any more than the Spirit of the Prophets, subject to those it reigns in.* 'Tis not, therefore, the Equity, the Sincerity, or the Facility, of other Men; but our own Conduct, Discretion, and Condescension, that must secure us in our Undertaking, and render it successful.

3. " And here, again, we lie under no small Difficulty, on account of our own natural Temper and Manners; for it is an irrevocable Decree with us, ever to retain our native Candor and Simplicity; and not attempt a Passage to Truth under the Conduct of Vanity; but so to moderate and behave our selves, as not by any Artifice, Craft, Cunning, Imposition, Imposture, or any thing like Imposture; but barely by the Ornament of Order; and by diligently engrafting new Discoveries upon the soundest Part of the old ones; to work our Way, and effect our Design. So far, therefore, from labouring this Point too much, that we rather judge we have bestow'd less Pains and Diligence in preparing Mens Minds, and conquering such great Difficulties, than the Nature of the Design requires.

4. " 'Tis observable, that most Men, in *Delivering or Concealing* their Knowledge, do not deal sincerely; or as the Nature of the Thing demands. And tho' the Crime may be less, yet the Mischief is the same, in those who are of sound Morals, and approved Candor; but want Prudence, or the Art and Method of delivering the Things in their just Order. Yet this unfair, ungenerous, or unskillful Manner of delivering the Sciences, is not greatly to be complain'd of; as such Writers have not, by their Way of Delivering, broke the Force of the Things they deliver: for a perverse Way of Teaching is justly preserved, where only Tricks are taught. But, as our Design is not to deliver the Fictions of our own Fancy, the Sport of Words, a Mixture of Philosophy and Religion, nor certain popular Observations, or considerable Experiments, work'd up into fabulous Theories; but *real Nature*, with all her Fruits about her; we should think it a betraying of our Trust, to infect such a Subject, either with an ambitious, an ignorant, or any other faulty manner of treating it. Our utmost Study is, therefore, bent upon a just and proper Method of delivering our selves.

5. " Many will, doubtless, be inquisitive to know, what this just and proper Method is; and require it to be told them naked and artless, without any Preamble; that they may exercise their own Judgments upon it: and we wish, indeed, Matters were so well with them, that we might gratify their Request. But the *Truth* is, the Minds of Men have the Ways and Passages up to them, so thick beset, and obstructed with such dark, deep rooted, and inveterate *Idols*, as in no wise to be soon cleared, laid level, and polish'd, to receive the true and native Images of Things. Whence we are obliged to use our utmost Address, to insinuate and slide into these dark and thick Coverts. For as Lunatics are only to be cured by Art, and proper Applications; but are rather made worse by Force, Opposition, and rough Usage; the same Course are we obliged to take, and use *a gentle Method in the Cure of this universal Madness.* And here we, surely, have a hard Task; to deliver Science so innocently, as to give no Occasion of Error and Offence; yet with such a native and implanted Force, as may procure Credit, guard against the Injuries of Time, and deliver Knowledge down to Posterity; like a vigorous and lively Plant, that may daily grow and increase; whilst, at the same time, we single out for our selves, and, as it were, adopt a rightly disposed and legitimate Race of Readers. But whether we have done all this, must be left to the Judgment of Posterity.

of this Kind ; lest it should be taken for publishing our own Merit : but as an Edge must be given to the Industry of others ; and their Minds be excited and raised ; 'tis proper we should here admonish Mankind of a few Particulars.

The Honour of Inventors.

28. And, first ; the Introduction of noble Inventions seems to hold, by far, the most excellent Place among all human Actions. And this was the Judgment of Antiquity ; which attributed *divine Honours to Inventors* ; but conferr'd only *heroical Honours* upon those who deserved well in *Civil Affairs* ; such as the Founders of Empires, Legislators, and Deliverers of their Country. And whoever rightly considers it, will find this a judicious Custom in former Ages ; since the *Benefits of Inventors* may extend to all Mankind ; but *Civil Benefits* only to particular Countries, or Seats of Men : and these Civil Benefits seldom descend to more than a few Ages ; whereas, Inventions are perpetuated through the Course of Time. Besides, a State is seldom amended in its Civil Affairs, without Force and Perturbation ; whilst Inventions spread their Advantage, without doing Injury, or causing Disturbance.

29. Discoveries, also, are like new Creations, and Imitations of the divine Works. And, 'tis observable of *Solomon*, that he fixed not his Glory in any of the Privileges of Royalty, or other Excellencies, whereof he was possessed ; but in this single Business of *Invention*. 'Tis the *Glory of God*, says he, *to conceal a Thing* ; and the *Glory of the King to find it out*.

30. Again ; Let any one consider, what a Difference there is betwixt the Life led in any polite Province of *Europe*, and in the savage and barbarous Parts of the *West-Indies* ; and he will find it so great, that one Man may deservedly seem a God, to another ; not only on account of greater Helps and Advantages ; but also upon a Comparison of the two Conditions : and this Difference is not owing to the Soil, the Air, or bodily Constitution ; but to Arts.

The Efficacy of Inventions.

31. Again ; It may not be improper to observe the *Power*, the *Efficacy*, and the *Consequences of Inventions* ; which appear no where plainer, than in those three Particulars, unknown to the Ancients ; and whose Origins, tho' modern, are obscure and inglorious ; *viz.* the Art of *Printing*, *Gunpowder*, and the *Compass* ; which have altered the State of the World, and given it a new Face ; (1.) with regard to *Learning* ; (2.) with regard to *War* ; and (3.) with regard to *Navigation* : Whence, numberless Vicissitudes of Things have ensued ; insomuch that no *Empire*, no *Self*, no *Celestial Body*, could seem to have a greater Efficacy, and, as it were, Influence over human Affairs, than these three *Mechanical Inventions* have had.

Three Kinds of Ambition.

32. Again ; It may not be amiss to distinguish three Kinds, and, as it were, Degrees of Ambition in Mankind ; the *first*, that of such as desire to aggrandize their private Power in their own Country ; which is the most vulgar and degenerate : the *second*, of such as endeavour to enlarge the

the Power and Empire of their Country, in respect of others; which is more noble, tho' no less cupidinous: but if any one should strive to restore and enlarge the *Power*, and *Empire of Mankind*, over the Universe of Things; this Ambition, (if it deserves the Name of Ambition) is, without dispute, more solid and majestic, than the others. But the *Empire of Man* over Things, is entirely founded in Arts and Sciences: for Nature cannot otherwise be commanded, than by obeying her Laws.

33. But if the Utility of any particular Invention, can affect Mankind so much, as to make them think him more than human, who could, by any single Benefit, oblige the whole Species; how much more noble must it appear, to discover some *one Thing*, by which all others may readily be discovered¹? And yet to say the Truth, as we are greatly obliged to Light, because by its Means we can see to Read, find our Way, exercise our Arts, and distinguish one another; whilst the Sight of the Light it self, is a more excellent and beautiful Thing, than these its various Uses; so, without dispute, the Contemplation of Things, as they are in themselves, without Superstition or Imposture, Error or Confusion, is itself, of greater Dignity, than all the Benefits of Invention².

The great Advantage of the present Design.

34. If any one, in the last Place, should object, that the Arts and Sciences may be wrested, and turned to evil Purposes or Sin, Luxury, &c. this can have little Weight; because it may be said of all the best Things in the World, such as great Capacity, Courage, Strength, Beauty, Riches, Light itself, &c. Let but Mankind recover their Right over Nature, which was given them by the divine Being; let them be well provided of Materials; and *rectified Reason*, and *sound Religion*, will direct the Use³.

That Arts and Sciences may be misemploy'd.

Answer'd.

APHORISM

¹ Viz. A new *Machine*, or *Logic*, directing the Mind to act upon all Subjects, with great Advantage. This Discovery the Author, in another Place, compares to the Discovery of the Compass; thus. "As in former Ages, when Navigation was directed barely by observing the Stars, Men could do no more than coast it along the Shores of the old World; or cross some narrow Seas; whilst the Use of the Compass was required, before the great Ocean could be traversed, and the new World be discovered: In like manner, the present Discoveries in Arts and Sciences, might be made by Instinct, Experience, Observation, and Contemplation; as lying not very remote from Sense; but, before the deeper and more remote Parts of Nature can be laid open, a better and more perfect Way of using and working with the Mind is necessarily required." He farther observes, that "the new World of Knowledge, differs from the new World of *America*; the former being much better furnished with Arts, than the latter; so that the known Arts of *Europe* are great Things there: whereas, on the contrary, the Additions still required to the Arts in use, must be of a higher kind, and so effectual, as to bend, subdue, and conquer Nature; or affect her radically: for it almost constantly happens, that the Things easy to find, prove but of little Service; whilst the Roots of greatest Virtue and Efficacy are deepest buried.

² See above, *Apb. 124.*

³ Perhaps it is not easy to form any considerable Objection to the present Design, besides those that have been already answer'd. However, if any remain, they have a Right to be proposed; even tho' derived, as possibly all the above-mention'd are, from *Anticipation*; or the common,

APHORISM CXXX.

The Art of interpreting Nature, no Stranger to the Mind.

35. 'Tis now Time we should propose the Art itself, of *Interpreting Nature*; wherein, tho' we conceive that we have laid down highly useful and just Precepts; yet we attribute no Perfection, or absolute Necessity, to this Art of ours; as if nothing could be done without it. For it is our Opinion, that if Men were possessed of a just *History of Nature and Experience*; were thoroughly versed therein; and could command themselves but in two Particulars; the one, in laying aside received Opinions and Notions; the other, in withholding the Assent, for a Season, from general Conclusions; they might, by their proper, and native Force of Mind, without any other Art, fall upon our *Form of Interpretation*: for the Whole is no more than a genuine and natural Work of the Mind; when the Obstacles to it are removed: tho', doubtless, all will be made readier for use, and receive great Strength, by our Precepts.

The Art of Invention, to increase with Inventions.

36. Nor do we say, that nothing can be added to these Precepts of ours: on the contrary, we who do not highly esteem the Mind in its own Faculty; but chiefly so far as it is furnished and joined with Things; ought to lay it down, that the *Art of Invention may grow up with Inventions themselves*.^m

common, imperfect, and hasty Use of the rational Faculty. Upon a Retrospection, those that have produced appear chiefly personal; and are answer'd, accordingly, by Arguments *ad Hominem*; that do not directly affect the Main of the Question; only tend to mollify and assuage Mens Minds, and allay the Winds of Prejudice, and hasty Opposition.

^m The Author's Piece, entitled *Cogitata & Visa*, which was a rough Draught of this first, or preparatory Part of the *Novum Organum*, concludes thus. "The Matter we have in hand is not an Opinion, but a Work; and not designed to lay the Foundations of any *Self* or partial *Doctrine*; but to prove generally, and extensively useful. Whence it has required the greater Care, and Consideration, not only with regard to the perfecting of the Thing itself; but also with regard to the manner of delivering and communicating it. For it is commonly found, that Men have Views to Fame, and Ostentation; sometimes in concealing, and sometimes in uttering the Knowledge they think they have acquired. And those also who have Things but of little Weight to offer, usually describe and put them off in Half-lights; the better to serve and humour their own Vanity. But for our Undertaking, we judge it of such a Nature, that it were highly unworthy to pollute it with any Degree of Ambition or Affectation. And yet, unless we were greatly unskilled in the Nature of Mens Minds, and of Things; and desired to enter the Road at once, without making the least Trial thereof; it lies upon us to remember, that *inveterate Errors can only be rooted out by Art, and gentle Treatment*: and that, therefore, a certain *Prudence*, and *Compliance*, must be used, so far as may comport with Candor and Simplicity; in order to prevent Opposition, before it is made. And, for this Purpose, we are preparing a *Philosophical Work*, that may have a quiet and agreeable Access to the Senses of Men. And this, we hope, will prove the easier, because we do not propose our selves as Leaders; but derive and scatter Light from Nature herself: so that there shall hereafter be no occasion for Leaders. But Time, in the *Interim*, being on the Wing; and the Author too much engaged in Civil Affairs; especially considering the Uncertainties of Life; he would willingly hasten to secure some Part of his Design from Contingencies: and after much close Thought, and a deliberate

Conf.

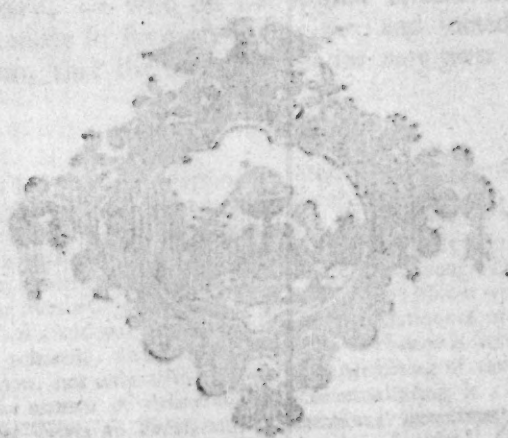
" Consideration, he determined, that, to prevent so useful a Thing from Disaster, the best
" Course was to propose and lay down certain *Tables of Invention*, or *Forms of genuine Enquiry*,
" that is, the digested Matter of Particulars, design'd for the Work of the Understanding; and
" this in some determinate Subjects, by Way of Example, or a *palpable Model of the Whole*.
" Nor could he devise any thing better, for setting the true Manner of Procedure, and the
" Errors of the Way, in a clear Light; or for evidently shewing, that the Things deliver'd
" are solid, and not the Sport of Words; and, again, for distinctly pointing out what they should
" avoid, who either distrust the Design, or conceive too highly of it. And hence, tho' we
" should not our selves compleat the Undertaking; yet Men, of a solid and sublime Genius,
" being thus admonished by what we have offer'd, may, without any greater Assistance, ex-
" pect the rest from themselves; and finish it. For, as to the Matter in hand, we are almost of
" his Opinion, who said, *This is enough for the Wise; and for the Unwise, more would not be*
" *serviceable*. But as it would have appear'd too abrupt, to have begun with the *Tables* them-
" selves; we thought proper to introduce them by this *Preparatory Discourse*.



419

2d. VII. *Intervening Nature*

It is a well-known fact, that in the case of a party who has been injured by the negligence of another, the injured party may recover damages from the negligent party, even though the negligent party has been absconded with, and the injured party has been unable to recover from the negligent party. This is the principle of the law, and it is the duty of the court to apply it in every case where it is applicable.



HHH 2

XX

Novum Organum Scientiarum:

PART II.

DECLARATION OF THE PRESIDENT

NOTUM ORGANUM SCIENTIARUM

NOTUM ORGANUM SCIENTIARUM :

PART II

NOTUM ORGANUM SCIENTIARUM

PART II.

SECT. I.

Particular APHORISMS *for Interpreting*
NATURE: *or, the Means of Enlarging*
the HUMAN POWER *and* KNOWLEDGE,
by the Discovery of FORMS.

APHORISM I.

1. (1.)  IS the Office, and End, of the *human Power*, to gene-
rate, or superinduce, a new Nature, or Natures, upon a Body assign'd: and, (2.) the Office, and End, of the *human Knowledge*, to discover the *Form* of a Nature assign'd; that is, its real Difference, naturizing Nature, Law, or the Fountain from whence it flows; which are Terms we use, in order to give some tolerable Notion of our Meaning*. And, subservient to these two *primary Works*, there are two other *secondary ones*, of inferior
- The Office of the human Power, and Knowledge.*
- Conside-

* For a fuller Notion of *Forms*, see below, *Apb.* 2, 17, 20. and *Sett.* II. *Apb.* 23, 27, &c. But, to render this *Aphorism* more clear and intelligible; we may turn it thus. "Upon a given Basis of Matter, to form, or introduce, a new Nature, in all possible Cases, is the Use and Exercise of our Powers; and to discover the *Causes* of the Effects in all Subjects, is the Use and Exercise of our Knowledge: which are two coincident Intentions; and, in Effect, the same. For what, in Speculation, appears to be the *Cause*; is, in Practice, the *Means* of Action; and directs us in the performing the Thing. Thus, for Example, upon finding that the specific and determinate Virtues, or Tastes and Odours of certain aromatic Plants, reside in their Essential Oils; we are hence directed to obtain these Oils, in order to procure the peculiar Virtues, Tastes, and Odours of such Plants. And thus the Case holds universally; as will more fully appear hereafter." See below, *Apb.* 3, 4, 11, 12, &c.

Consideration: thus, (1.) to the former belongs the *Transformation of Concretes, from one Thing into another, through all possible Variety*; and, (2.) to the latter, the *Discovery of the latent Process in every Generation and Motion, as it is continued from the manifest Efficient, and the manifest Matter, up to the giving of the Form*; and, in like manner, there belongs to it the *Discovery of the concealed Structure of quiescent Bodies, or Bodies that are not in Motion*^b.

APHORISM II.

Causes of four Kinds.

2. How inadequate and unsuccessful that *human Knowledge* is, which we have at present in *Use*, may appear from the Things commonly asserted^c. 'Tis certain, that *true Knowledge, is the Knowledge of Causes*. Now we may properly make four Kinds of *Causes*; viz. (1.) the *Matter*; (2.) the *Form*; (3.) the *Efficient*; and, (4.) the *End*. But the latter, or *final Cause*, is so far from being serviceable, that it corrupts the Sciences; unless it be restrained to human Actions^d. The *Discovery of Forms*, is held desperate; and the *efficient* and material Causes, in the manner they are at present sought after and admitted, (viz. the *remote Efficient*, and the *remote material Causes*, without the Knowledge of the *latent Process* up to the *Form*;) are trifling and superficial Things; that scarce at all contribute to real, and effective Knowledge. 'Tis true, we above noted and corrected the Error of the Mind, in attributing the *Essences of Things to Forms*^e: but altho' in *Nature*, nothing really exists besides individual Bodies, that perform individual Actions, by a *Law*; yet in *Doctrine*, this *Law* itself, the Enquiry into it, with the *Discovery and Explanation* thereof, is the Foundation as well of *Knowledge*, as of *Works*: and 'tis this *Law*, and its Parts, that we understand by the name of *Forms*^f; especially as the Term already prevails, and is grown familiar^g.

Forms, what.

APHORISM III.

The Knowledge of Forms leads to great Discoveries.

3. He who knows the Cause of any Nature, as, for Instance, that of Heat, or Whiteness, in certain Subjects only, has an imperfect *Knowledge*; he who can produce an Effect upon certain *Matters* only, among those susceptible thereof, has, in like manner, an imperfect *Power*; and he who

^b The present Sett of *Aphorisms* will require a considerable Degree of Attention; and should be read in the manner of *Mathematical Demonstrations*.

^c Which are seldom found, upon farther Enquiry, to be derived from their *Causes*; so that they frequently fail, when used as *Rules of Practice*. See the *First Part*, passim.

^d See *Vol. I. p. 83, 84, &c.*

^e See above, *App. 51.*

^f By the Word *Forms*, therefore, we are to understand a full and clear Knowledge of the *Law, Procedure, or Means* of Nature, in producing Effects. This Notion will, however, be farther improved and explained hereafter. See below, *App. 17, 20.*

^g The Author every where endeavours, as much as possible, to retain the ancient Terms; tho' he conveys new Meanings under them; as judging it best to innovate, like Time, by Degrees.

who knows only the *efficient* and *material Causes*^b, which are unstable, and, in some Cases, no more than Vehicles, or Causes that carry the *Form*; may arrive at new Inventions in a Subject somewhat similar and prepared; tho' he cannot remove the Boundaries of Things that are deeper fixed: but he who understands *Forms*, will perceive the Unityⁱ of *Nature* in the most dissimilar Cases; and may therefore discover and produce such Things as have not hitherto appeared; or such as neither the Vicissitude of Nature, nor the Industry of Experimenting, nor Chance itself, could ever have brought into being: nor would they otherwise have entered the Thoughts of Men^k. So that Justness of *Theory*, or Contemplation, and Freedom of *Practice*, or Operation, depend upon the *Discovery of Forms*.

APHORISM IV.

4. Altho' the *human Power*, and *human Knowledge*, are nearly allied, *Practice to govern Theory*. and, in a manner the same; yet by reason of the pernicious and inveterate Custom of dwelling in abstract Notions, 'tis abundantly the safest Way to begin and build up the Sciences, from those Foundations which are laid in order to *Practice*, so as to let this mark out, and determine the *Theory*. We shall, therefore, here examine what Kind of Rule, Direction, or Leading, a Man would principally wish for, in order to superinduce an assigned Nature upon a given Body.

^b See *Aph. 2.* of this Part.

ⁱ *Viz.* The *Uniformity*, or rather the *Identity*, or *Sameness*, of *Nature*; for by the Supposition, *Forms* are the *Laws of Nature*; according to which she constantly acts; that is, ever in one and the same manner: so that a Knowledge of *Forms* is a Knowledge of the *Unity*, *Identity*, or what may be called the *Manner of Nature*.

^k In another Place, the Author has broke this *Aphorism* into Parts; which may render it more intelligible; *viz.*

1. "He who understands the Cause of any *Nature* in certain Subjects only, has but an imperfect *Knowledge*; as he who can produce an Effect only in one certain Matter, of all those susceptible thereof, has but an imperfect *Power*."

2. "He who understands *efficient* and *material Causes*, is thence instructed how to compound, divide, transfer, or produce, and even proceed to new Discoveries, in Subjects of a somewhat similar and disposed Matter; but cannot by this Means alter the deep fixed Limits of Things."

3. "He who understands the *Causes* of any *Nature* but in certain Subjects, knows only the *efficient*, or *material Causes*, which are unstable Things; and no more than *Vehicles of Causes*, wherein the *Form* resides: but he who understands the *Uniformity of Nature*, in very different Kinds of Subjects, has a Knowledge of the *Forms* of Things."

4. "He who understands *Forms*, will discover and produce such Things as are hitherto unknown, and unproduced; and such as neither the *Revolutions* and *Changes* of *Nature*, nor *Experience*, would ever have manifested; nor the Thoughts of Men ever otherwise have conceived."

5. "The Way and Perfection of Truth and Power is the same; *viz.* the *Discovery of Forms*; upon which ensues both a just *Theory*, and an unlimited *Practice*. And hence it appears, that the Perfection of human Knowledge, both speculative and practical, is the *Knowledge of Forms*. For to contemplate the Process of Nature in her Works, is a just *Theory*, that leads to a perfect *Practice*." No Wonder, therefore, if the *Discovery of Forms* be the sole Business of this *Second Part* of the *Novum Organum*.

*The Properties
of a good Rule
for Practice.*

5. Thus if any one should desire to superinduce upon Silver the yellow Colour of Gold, and to increase its specific Gravity, or to superinduce Transparency upon an opaque Stone; Malleability upon Glass; Vegetation upon a Body not of the vegetable Kind, &c. he would, doubtless, desire to be shewn, (1.) some Way that should not frustrate his Labour, or fail him upon the Trial. (2.) He would desire such a Method as should not tie him down, or confine him to the Use of certain determinate Means, and particular Ways of Working; because he might, perhaps, be unprovided herein; or not have the Power and Convenience of procuring the necessary Helps: And if there were other Methods, within his Power, besides that delivered in the Rule, for superinducing such a Nature, that he might not be excluded their Use, thro' the Limitation, or Narrowness of his Rule; and so not receive the Benefit of those Methods. (3.) He would wish to be shewn something less difficult than the Operation he enquires after; and such as might approach nearer to Practice.

*The Precept
for a perfect
Rule of Pra-
ctice.*

6. The Precept, therefore, for a true and perfect practical Rule, is, that *the Rule be sure, unrestrained to particular Means or Expedients; and dispose or lead directly to Action*: and this is the same Thing with the Discovery of a real Form. For, the Form of any Nature, is such, that where it is, the given Nature must infallibly be: The Form, therefore, is perpetually present, when that Nature is present; ascertains it universally, and accompanies it every where. Again, this Form is such, that when removed, the given Nature infallibly vanishes: Therefore the Form is perpetually wanting, when that Nature is wanting; and thus confirms its Presence, or Absence; and goes and comes with that Nature alone. Lastly, a true Form^m, is such as can deduce a given Nature from some essential Propertyⁿ, which resides in many Things; and is more intimately known, or linked to Nature, than the Form itself. The Precept, therefore, for a true and perfect Theoretical Axiom is, *to find another Nature, that may be convertible with the Nature assigned; yet limit the more common Nature, like a true Genus^o*. These two Precepts, the former whereof is practical, and the latter speculative, are one and the same Thing^p; and so what proves most useful in Practice, is also perfectly just in Theory^q.

*The Precept
for a true and
perfect theore-
tical Axiom.*

APHORISM

^m Viz. A Knowledge of Nature's Means, in producing any Effect. See *Apb. 3.* of this Part.

ⁿ To find this Property, therefore, readily disposes and leads to Practice, by singling out one particular Property, whereon the rest depend; instead of pursuing a great many. Thus, it should seem, that if any Matter could be made as ponderous as Gold, it would become Gold; or if any Matter could be made as hard and resplendent as the Diamond, it would become Diamond, &c.

^o So, for Example, by enquiring into the Form of Heat, a particular shuddering Motion among the small Parts of Bodies, seems the convertible Nature, or Form, that, like a true Genus, limits the more common Nature of Heat. See below, *Apb. 15, 16 17, 18, &c.* but particularly, *Apb. 20.* (3.) and (4.)

^p See Part I. *Apb. 3.*

^q The Meaning is, that to gain the best practical Rules, we must discover the Forms of Things; that Forms are Rules; and Theory and Practice the same Thing. The following Aphorisms will add more Light hereto. See in particular, *Apb. 9.*

APHORISM V.

7. But the *Rule*, or *Axiom*, for the Transmutation of Bodies¹, is of two Kinds. The *first*, regards a Body, as a certain Collection or Combination of *simple Natures*². Thus, for Example, in Gold, there meet together Yellowness, a determinate Gravity, Malleability to a certain degree, Fixedness in the Fire, a particular Manner of flowing in the Fire, a determinate Way of Solution, &c. which are the simple Natures in Gold. And, therefore, this Kind of *Axiom* deduces the Thing from the *Forms* of simple Natures. For he who understands Forms, and the Manner of superinducing this Yellowness, Gravity, Ductility, Fixedness, Faculty of Fusion, Solution, &c. with their particular Degrees, and Proportions, will consider and provide how to join them together in some Body; so that a Transmutation into Gold shall follow³: and this Kind of Operation regards the principal Action. For the Way is the same of producing any one simple Nature, as many: only Man is more confined and restrained in working where many are required; because of the Difficulty of uniting a Variety of Natures together, which do not easily meet, except in the common and beaten Roads of Nature⁴. And yet this Method of working, which regards simple Natures, tho' in a concrete Body, may proceed upon such Principles as are constant, eternal and universal in Nature; and afford such broad Ways to the human Power, as the Mind, in the present State of Things, can scarce conceive or represent to itself⁵.

*Axiom for the
Transformation
of Bodies.*

8. But the *second* Kind of *Axiom*, which depends upon discovering the *latent Process*⁶, does not proceed by simple Natures; but by concrete Bodies, such as they are found in the ordinary Course of Nature: For Example, when Enquiry is made from what Origin, by what Means, and what Procedure, Gold, or any other Metal, or Stone, is generated, from its first fluid Matter, or Rudiments, up to a perfect Mineral: Or, again, by what Process Plants are generated, from the first Concretions of their Juices in the Earth, or from the Seed, to a formed Plant; together with the whole Succession of Motion, and the various and continued Endeavours of Nature. Understand the same of regularly explaining the Production of Animals, from the first Act of Generation; and so of other Bodies⁷.

*Second Axiom
for Transmu-
tation.*

¹ See *App.* 1. of this Part.

² Or what we commonly call *Properties*.

³ See *Vol.* III. p. 88, 89.

⁴ *Viz.* As they are united by Nature herself; for Example, in Gold, Quicksilver, &c.

⁵ There are several Attempts of this Kind in the *Sylva Sylvarum*. See particularly, the Articles *Gold*, *Transmutations*, &c. But a more perfect *History of Nature and Art* must be procured, before any successful Method of this Kind can be formed.

⁶ *Viz.* The several continued Steps, or whole Procedure of Nature, in producing Effects. See below, *App.* 6.

⁷ Let an Eye be had all along to the first *Aphorism* of this *Section*; where a Foundation of the Whole is laid.

Regards Mo-
tions, as well
as Generati-
ons.

9. And this Enquiry does not only regard the Generation of Bodies; but likewise other Motions and Works of Nature: for Example, when Enquiry is made into the whole Series and continued Actions of Nutrition, from the first receiving of the Aliment, to a perfect Assimilation; or, after the same Manner, into the voluntary Motion of Animals, from the first Impression of the Imagination, and the continued Efforts of the Spirit, down to the bending and moving of the Limbs; or, again, in explaining the Motion of the Tongue, Lips, and other Organs, up to the Formation of articulate Sounds. For these Things also have regard to concrete Natures, or Natures associate and organical; and belong, as it were, to the particular and especial Customs of Nature; and not to the fundamental and common Laws which constitute *Forms*. It must indeed be allowed, that this Method seems more facile, quick and promising, than the *primary Method*, above mentioned⁷.

The Practice
answering to
the Theory.

10. But the effective Part, which answers to this speculative one, in like manner extends, and advances its Operation, from those Things which are commonly found in Nature, to certain others that lie near, or not very remote: tho' the higher and radical Operations upon Nature require the former *primary Axioms*. And where Mankind has no Power of operating, but only of contemplating, as in the Celestial Bodies, which we cannot operate upon, change or transform; yet the Enquiry of the Fact, or Truth of the Thing, belongs, no less than the Knowledge of Causes, and Relations, to the *primary*, and *universal Axioms* of simple Natures⁸: suppose, for Example, the Enquiry about the Nature of spontaneous Rotation, Attraction, and many other Natures; which are more common and familiar to us than the Celestial Bodies themselves. And let no one expect to determine the Question, whether the diurnal Motion belongs to the Heavens or the Earth, unless he first understand the Nature of spontaneous Rotation⁹.

APHORISM VI.

Latent Pro-
cess, what.

11. The *latent Process* we speak of^b, is a thing that cannot easily enter the Mind, so beset as it is at present: for we do not here mean certain visible Measures, or Signs, or Steps of Procedure in Bodies; but a perfect continued Process, the greatest Part whereof escapes the Sense.

Contains nu-
merous Parti-
culars.

12. Thus, for Example, in every Generation and Transformation of Bodies, it comes to be enquired what is lost, or flies off; what stays behind; what is added; what dilated; what contracted; what united; what separated; what continued; what cut off; what impells; what obstructs; what prevails; what yields, &c.

13. Nor

⁷ See above, §. 7. and again, *Aph. 1.*

⁸ See above, §. 7.

⁹ Because the more simple, common, and obvious Natures must be understood, before we can hope to understand such as are compounded, remote, or abstruse. See *Vol. II. p. 15, 16, &c.*

^b See *Part II. Aph. 1.*

13. Nor are these Things only to be sought in the Generation, or *Unregarded in the Sciences.* Transformation, of Bodies; but after the same manner, it comes to be enquired in all other Alterations and Motions; what precedes; what succeeds; what is quick; what slow; what gives Motion, what governs it; and the like. But all these Things remain unknown, and untouched in the *Sciences*, which are, at present, formed in a very gross, and perfectly inadequate Manner. For as every natural Action is performed by the smallest Particles, or at least by Particles so small as to escape the Senses; let no Man expect to govern Nature, or turn her Course, till he has, in a proper manner, become acquainted with these small Particles*.

APHORISM VII.

14. Again; the Enquiry, and Discovery, of the concealed *Structure*^d in *The concealed Structure, unknown.* Bodies, is as much a new Thing, as the Discovery of the *latent Process* and *Form*: for Men have hitherto trod only in the outer Courts of Nature; and are not prepared to enter within. But no one can superinduce a new Nature upon a given Body; or successfully and appositely change it into another Body; unless he has first a competent Knowledge of the Body to be altered, or transformed; as without it he will fall upon frivolous Methods, or at least such as are difficult, perverse and unsuitable to the Nature of the Body whereon he operates: and therefore in this respect also, a Way must be necessarily opened and prepared.

15. Labour is properly and advantageously bestowed upon the *Anatomy* *And difficult to come at.* of *organical Bodies*; such as those of Men and Brutes: as it seems a Thing of Subtilty, and a good Scrutiny of Nature. But this kind of Anatomy is a Work of the Eye, subject to Sense, and takes place only in organical Bodies; so that it is an obvious and facile Thing, compared with the real *Anatomy of the latent Structure* in Bodies accounted similar; especially in specificate Things and their Parts; as Iron, and Stone; the similar Parts of Plants and Animals, as the Root, Leaf, Flower, Flesh, Blood, Bone, &c. And in this Particular, human Industry has not been entirely wanting; as appears from the Separations of supposed similar Bodies by Distillations, and other Methods of Solution, in order to shew the Dissimilarity of the Compound, by separating and collecting its different homogeneous Parts together: Which is a Thing of Use, and makes to our present Purpose: tho' it is often fallacious; because many Natures are attributed to Separation, as if they pre-existed in the Compound; whilst they are really given, and originally superinduced by the Fire, Heat, or other Method of resolving them. And this also is but a small Part of the Business of finding the true Structure of a Compound; as this Structure is a Thing of very great Delicacy and Subtilty, and rather confounded

* See Vol. III. p. 222, &c.

* See above, Part II. Aph. 2.

confounded them discovered, and brought to Light, by the Operations of the Fire ^e.

Induction to be used instead of Fire, in the Analysis of Bodies.

16. Bodies, therefore, are to be separated, and resolved, not by Fire, but by *Reason*, and genuine *Induction*; with the Assistance of Experiments: and again, by comparing them with other Bodies, and reducing them to simple Natures, and their Forms, which meet and are combined in the Compound; for we must go over from *Vulcan*, to *Minerva*, if we would bring to Light the real Textures and Structures of Bodies; wherein all the secret and specific Properties and Virtues of Things depend; and from whence the Rule of every powerful Alteration, and Transformation, is to be derived.

The Spirit and tangible Parts of Bodies, to be enquired after.

17. Thus, for Example, we must enquire, what the *Spirit* in every Body is; and what the *tangible Substance*; whether this Spirit be copious and turgid, or hungry and small in Quantity; whether it be thin or gross; airy or fiery; brisk or sluggish; weak or strong; in Progress or Recess; interrupted or continued; agreeing or disagreeing with the Things external and circumjacent, &c. And in like manner we are to enquire about the *tangible Substance* (which admits as many Differences as the Spirit;) what its Coats, its Grain, and Fibres, its Kinds of Texture. Again, under the same Enquiry comes the Distribution of the Spirit through the corporeal Mass; with its Pores, Passages, Veins, Cells, and the Rudiments, or first Lineaments, of the organical Body. In which Cases also, and consequently in the Investigation of every *concealed Structure*, a true and clear Light is afforded, by our *primary Axioms*, sufficient to dispel all Darkness and useless Subtilty ^f.

APHORISM VIII.

Objections to the Business in hand, answered.

18. Nor will this bring us to the Hypothesis of *Atoms*; which erroneously presupposes Vacuity, and a permanent State of Matter; but to real Particles, such as they are found. Nor need any one dread this Subtilty as inexplicable^g; for, on the contrary, the more the Enquiry tends to simple Natures, the plainer and clearer will every Thing become;

^e The Fire is a very improper Analyser in many Cases; especially where the Subject is capable of being scorched, or render'd empyreumatic; which quite perverts or alters its Nature; as we see in burnt Sugar, &c.

^f See Part II. App. 1, 5, and 7.

^g This Caution appears to be seasonably interposed; for, doubtless, many Readers, who have not been used to abstruse Speculations, or mathematical Reasoning, will be at a Loss to perceive what the Author drives at; or be apt to imagine the Whole an intricate Subtilty, not worth the Trouble of Understanding. Those who think in this manner, may please to pass over, for a Time, the first ten *Aphorisms* of this *Second Part*, and begin with the eleventh; for the *practical Tables*, and actual Method of investigating the *Forms of Things*; (where all is performed by Examples and sensible Representations;) will prepare the Mind, and facilitate the understanding of these more abstruse Aphorisms, if read after some tolerable Notion of the Business in hand, and the Method of conducting it, is procured.

become; the Business being thus brought from Multiplicity to Simplicity; from Incommensurables to Commensurables; from Surds to Computables; and from Things finite and vague, to such as are definite and certain; as in the Case of the *Letters of the Alphabet*, and the *Notes of Music*^b. And 'tis then that a natural Enquiry proceeds justly, when physical Considerations terminate in such as are mathematical^c. And again, let no one be frightened at *Multitude* or *Fractions*: for in Things performed by Numbers, 'tis as easy to set down, or think of a Thousand, as of One; or of the thousandth Part of an Unite, as of an Unite itself.

APHORISM IX.

19. From the two Kinds of *Axioms* above laid down^k, arises a just *Philosophy divided, with regard to primary, and secondary Axioms*. Division of *Philosophy* and the *Sciences*; taking the received Terms (which come nearest in expressing the Thing) agreeably to our own Meaning; viz. so that the *Enquiry of Forms*, which from the Reason of the Thing itself, and their own Law, are eternal, and immutable, may make *Metaphysics*; and the Enquiry into the *Efficient*, the *Matter*, the *concealed Process*, and *latent Structure*, may constitute *Physics*^l: as these several Particulars regard the common and ordinary Course, and not the fundamental and eternal Laws of Nature. And let each have its corresponding Branch of Practice; and *Mechanics* be made subservient to *Physics*; and *Magic* (taking that Word in its genuine Sense) to *Metaphysics*; on account of the wide Passage which Magic affords into, and the great Command it has over Nature^m. And having thus established the Scope and End of our Doctrine; we proceed, in a regular Manner, to *Precepts*ⁿ.

APHORISM X.

20. The *Indications for the Interpretation of Nature*, include two general Parts: the *first* relates to the raising of *Axioms* from Experience; and the *second* to the raising of *the Indications for interpreting Nature*.

^k For as all the Variety of Sounds and Words are made out of twenty-four Letters; and all the Variety of Tunes out of eight Notes; so a few *simple Natures*, or *primary Properties*, (such as *Fluidity* and *Firmness*, *Volatility* and *Fixedness*, &c.) appear to compose all that Variety which we find in Bodies.

^l For all the Motions, Powers, Forces, Operations, Energies, and Quantities of Bodies, must be computed, measured, and determined, before *Natural Philosophy* can be perfected. But let not the *Calculation* be rashly applied, before the *Facts* are discovered and ascertained; for *Mathematics* is not to *constitute*, but only to *limit Physics*. See Vol. I. p. 90.

^m App. 5. §. 7. and 8.

ⁿ See Vol. I. p. 73, 74.

^o See Vol. I. p. 87, &c. This Division appears extremely just and useful; but has not, perhaps, been any way consider'd and regarded as it deserves, on account of the imperfect State of Philosophy: for as Philosophy improves, this Division must, almost of Necessity, take Place.

^p The nine preceding *Aphorisms* are a kind of close-wrought, axiomatical Chain of Doctrine, that, when rightly understood, will appear deep, sagacious, and drawn from Nature; so as to lay a firm, just, and adequate Foundation for the intended *New Logic*, or *Method of investigating the Forms of Things*.

the *second* to the deducing or deriving of new Experiment from *Axioms*°. The *first* is divided into three Kinds of *Administrations*, or *Helps*; viz. the *Helps* (1.) for the *Sense*; (2.) for the *Memory*; and, (3.) for the *Reason*.

Viz. A History of Nature.

21. (1.) Therefore, a just and adequate, *Natural and Experimental History*, is to be procured, as the Foundation of the whole Thing: for we are not to fancy, or imagine, but to discover what are the Works and Laws of Nature.

Tables of Instances.

22. (2.) But *Natural and Experimental History* is so copious and diffusive a Thing, as to confound and distract the Understanding; unless such History be digested and ranged in proper Order: therefore *Tables*, and *subservient Chains of Instances*, are to be form'd and digested in such a Manner, that the Understanding may commodiously work upon them.

Genuine Induction.

23. (3.) And tho' this were done; yet the Understanding left to its self, and its own spontaneous Motion, is unequal to the Work, and unfit to enter upon the raising of *Axioms*; unless it be first regulated, strengthened and guarded: therefore, in the *third* place, genuine and *real Induction* must be used as the *Key of Interpretation*. But we are to begin at the End; and proceed backwards to the rest^p.

The Procedure of the Enquiry of Forms.

24. The Enquiry of *Forms*^q proceeds in this manner. *First*, all the known Instances agreeing in the same Nature, tho' in the most dissimilar Subjects, are to be brought together, and placed before the Understanding. And this Collection is to be made historically, without any over-hasty Indulgence of Speculation; or any great Subtilty, for the present. We will illustrate the Thing by an Example in the Enquiry into the Form of Heat.

° See Vol. III. p. 314, &c. This deriving of new Experiments from *Axioms*, is a Part of the present Work, that was not published. See below, *App.* 21.

^p That is, we are to begin with *Induction*; and proceed backwards to the forming of a *Natural and Experimental History*; and then to the forming of *Axioms*, &c.

^q Whereon the Advancement and Perfection of Philosophy, the Sciences, and all practical Arts, depend; as has been shewn above, *App.* 1—7.

*The true METHOD of Discovering
FORMS; illustrated, by an Example
in the FORM of HEAT.*

TABLE I.

INSTANCES agreeing in the NATURE of HEAT^a.

- | | | |
|-------|--|-----------------------------------|
| (1.) | T HE Sun's Rays, especially in Summer, and at Noon-day. | Affirmative |
| | (2.) The reflex and collected Rays of the Sun; as be-
twixt Mountains, and Walls; but particularly in Burning-glasses. | Instances of
Heat. |
| (3.) | Fiery Meteors. | Celestial. |
| (4.) | Burning Lightning. | |
| (5.) | Erućtations of Flame from the Caverns of Mountains, &c. | Subterrane-
ous. |
| (6.) | Flame of all Kinds. | Common
and extraor-
dinary. |
| (7.) | Ignited Solids. | |
| (8.) | Natural Hot Springs. | |
| (9.) | Heated Fluids. | |
| (10.) | Hot Vapours, and Fumes: and the Air itself; which conceives
a violent and raging Heat, when pent up; as in Reverberatory
Furnaces. | |
| (11.) | Certain clear, sultry Seasons, from the Constitution of the Air;
without regard to the Time of Year. | |
| (12.) | Subterraneous Air, confined in certain Vaults or Caves; espe-
cially in the Winter. | |
| (13.) | All shaggy Matters; as Wool, the Furs and Plumage of Ani-
mals, have some degree of Warmth. | |

^a Viz. A Collection of the Particulars wherein Heat is found; so that the following Particulars agree in having the Nature of Heat common to them all.

- (14.) *All Bodies, as well solid as fluid, dense as rare, even the Air itself, exposed to the Fire for a Season, become hot.*
- By Attrition, or Percussion. (15.) *The Sparks caused by a strong Percussion betwixt the Flint and Steel.*
- (16.) *All Bodies upon a strong Attrition; as Stone, Wood, Cloth, &c. whence the Axletrees and Wheels of Carriages, sometimes take fire: and it has been a Practice to procure Fire by Attrition, in the West Indies^b.*
- Putrefaction. (17.) *Green and moist Plants laid up and press'd close together; as Roses, Pease in Carts, &c. so likewise Hay stack'd before 'tis dry, often takes fire^c.*
- Solution. (18.) *Quick-lime, slaked with Water.*
- (19.) *Iron, when first dissolved with acid Spirits, tho' contained in a Glass, without any Assistance of the Fire: and, in like manner, Tin, &c. tho' not so intensely.*
- Animals. (20.) *Animals, especially their inward Parts; tho' in Insects, by reason of the Smallness of their Bodies, no Heat is discoverable to the Touch.*
- Excrements. (21.) *Horse-dung, and the like recent Excrements of Animals.*
- Chemical Preparations. (22.) *Oil of Vitriol, Aqua Fortis, &c. have the Effects of Heat in burning Linen, &c.*
- (23.) *The essential Oil of Origanum, and the like, have the Effects of Heat in burning the Teeth^d.*
- (24.) *Well rectified Spirit of Wine, has the Effect of Heat; so as to blanch and harden the White of an Egg put into it, almost like boiling Water: it also hardens or scorches, as it were, Bread that is suffer'd to lie therein.*
- Aromatics. (25.) *Spices, and spicy Herbs, such as Dragons, old Cresses, &c. tho' not hot to the Hand, either whole nor in powder; yet when chewed a little, are found hot, or burning, to the Tongue and Palate.*
- Acids. (26.) *Strong Vinegar, and all Acids, cause a Pain, not greatly differing from that produced by Heat, when such Acids are applied to any Part of the Body, that is not defended by a Scarf-skin; as the Eye, or Tongue, for Example, that are naked, or any other Part that is wounded and laid bare.*

(27.) Even

^b Viz. By rubbing two Sticks together in a particular manner.

^c See Boerhaave's Chemistry, Proceſs 88. or the Putrefaction of Vegetables. See also the Paper of Dr. Cox, upon the same Subject, in the Philosophical Transactions.

^d All the essential aromatic Oils, seem heating and inflaming to the Body; particularly the Oils of Cinnamon, Cloves, Cortex Winteranus, &c.

(27.) *Even severe and intense Cold produces a Sensation like that of Cold. Burning^e.*

(28.) *Instances forgot, or omitted^f.*

And this Table we call the Presenting, or Affirmative Table g.

APHORISM XII.

25. In the *second* Place, those *Instances* are to be brought before the *The Method of Understanding*, which have not the *Nature* assigned; because the *Form*, *forming the second Table*, as we said^h, ought no less to be wanting, where the given *Nature* is wanting; than to be present, where that is present: but as it would be endless to pursue these *Instances* throughout; *Negatives* are to be subjoined to the *Affirmatives*; and the want of the given *Nature*, to be considered only in such *Subjects* as are nearest related to those wherein it resides and appears. And this Table we call the *Table of Declination*; or of *Absence in Approach*ⁱ.

TABLE II.

INSTANCES of APPROXIMATION; yet wanting the NATURE of HEAT.

The first Negative, or Subjunctive, Instance; to the first Affirmative.

- (1.) **T**HE Rays of the Moon, Stars and Comets, are not found *Negative Instances of Heat*
hot to the Touch; and the sharpest Colds are observed

^e --- *Boreæ penetrabile frigus adurit.* Thus the handling of Snow or Ice will make the Fingers glow.

^f Observe, that this Table is here only to serve as an Example, and not as an actual Enquiry prosecuted to its due length, as those of *Life and Death, Winds, &c.* in Vol. III. p. 337, 441, &c.

^g Because it exhibits the Facts, or shews in what Subjects the Nature enquired after resides.

^h See above, §. 6.

ⁱ Because it exhibits those Particulars, wherein, thro' Nearness, or apparent Similarity, the given Nature might be expected; and is yet found to be wanting. Thus, as the Rays of the Sun are found hot, the Mind is apt to infer the same, in a less Degree, of the Rays of the Moon: But the Rays of the Moon have no sensible Heat; tho' they are the very Rays of the Sun by Reflection.

in the Full of the Moon. But when the Sun is in Conjunction with the larger Fixed Stars, or approaches near them, such Stars are thought to augment the Heat; as when, for Example, the Sun is in Leo, during the Dog-days^k.

A second, Negative Instance; to the second Affirmative.

The celestial
Kind.

(2.) *The Rays of the Sun, beat not in that call'd the Middle Region of the Air: and the Reason commonly assigned, with some Probability, for it, is, because the Body of the Sun that emits the Rays, never sufficiently approaches either that Region, or the Earth, which immediately reflects them: and this appears from the Tops of Mountains, unless extremely high, where the Snow continually lies. But, on the contrary, 'tis observed by some, that no Snow is lodged on the Tops of the Pike of Teneriff, and the Andes, or high Mountains of Peru, but only upon the lower Declivities. Besides, the Air on the Tops of these Mountains is not found cold; but only thin and sharp; so as on those of Peru, to prick and vellicate the Eyes, and Mouth of the Stomach, and cause a Vomiting by their Acrimony. And, 'tis observed by the Ancients, that the Air was so thin on the Top of Mount Olympus, as to make it necessary for such as went up, to carry along with them Sponges dipt in Vinegar and Water; and every now and then apply them to the Mouth and Nose; because the Air, through the great degree of its Rarification, was not there sufficient for Respiration^l. And on the Top of this Mountain there was said to be so great a Serenity and Tranquillity, from Rain, Snow, and Wind, that the Letters drawn by the Fingers of those who sacrificed there, upon the Altar of Jupiter, would remain in the Ashes of the Sacrifice, unaltered, till the Year ensuing. And at present, the Persons that go up to the Top of the Pike of Teneriff, travel by Night, not by Day; and soon after Sun-rising are advis'd and press'd by their Guides to make haste down, for fear of being render'd Breathless by the Thinness of the Air^m.*

A third

^k It might be proper, in Practice, or when any particular Enquiry is gone upon, to write these Tables in opposite Columns, on the same Paper; which would render the Whole more commodious, and ready for Use.

^l Will this Expedient, in any respect, supply the Want of Air for Respiration?

^m It is, with Certainty, found, by the *Barometer*, and otherwise, that the Air grows rarer and rarer, in proportion to the Height ascended upon Hills.

A third Negative ; to the second Affirmative.

(3.) *The Reflection of the Sun's Rays, in the Parts near the Polar Circles, is found exceeding weak, and faint, in Point of Heat ; so that the Hollanders, who wintered in Nova Zembla, expecting, by the beginning of July, their Ship to be freed from the Mass of Ice wherein she was froze, found themselves disappointed ; and were obliged to commit themselves to their Long-boat. Therefore, the direct Rays of the Sun seem to have little Power, even upon a flat Surface : and so have the reflex Rays also, unless multiplied and united, as they are when the Sun becomes more perpendicular ; because the Rays then strike in acuter Angles, and so come nearer to one another ; whilst in great Obliquities of the Sun, the Angles are very obtuse ; and consequently the Rays at a greater Distance one from another. It must, however, be observed, that there may be many Effects of the Sun's Rays, and such as participate of the Nature of Heat, which are not proportioned to our Sense of Touch ; so that with respect to us, they produce no Warmth ; tho' with respect to some other Bodies, they may have the Effect of Heat.ⁿ*

A fourth ; to the second.

(4.) *Let this Experiment be made : Take a Glass, fashioned in a The Burning-contrary manner to that of the common Burning-glass ; and place it Glas. between the Hand and Rays of the Sun, in order to observe whether it diminishes the Sun's Heat, as a Burning-glass increases it°. For, 'tis manifest, with regard to the Optic Rays, that according as a Glass is made of a different Thickness, with respect to the Middle and the Sides ; so the Objects seen through it appear larger, or more diminished : The Effect should, therefore, be tried in Heat.*

A fifth ; to the second.

(5.) *Let a careful Experiment be made, to shew, whether, by the most powerful and best contrived Burning-glass, the Rays of the Moon may be collected so as to afford any, the most minute degree of Warmth. But if this Warmth should prove too subtil and weak to be perceived by the Touch ;*

^a See Mr. Boyle's *History of Cold*. Abridgm. Vol. I. p. 574--584, &c.

^o The Meaning seems to be, instead of a Lens, or double Convex Glass, to try a double Concave.

Touch; recourse must be had to Thermometers; which shew the Heat, or Coldness of Air; so as to throw the Moon's Rays, by a proper Burning-glass, upon the Top of such a Thermometer; and observe whether the Height of the included Liquor be altered by the Warmth^p.

A sixth; to the second.

(6.) *Let a Burning-glass be tried, with a Heat that is not luminous, or shining; as that of Iron, or Stone, heated, but not ignited; boiling Water, and the like: and observe whether the Heat is increased, as in Case of the Sun's Rays.*

A seventh; to the second.

(7.) *Let a Burning-glass also be tried with common Flame.*

An Eighth; to the third.

Comets and
Meteors.

(8.) *If we are disposed to reckon Comets among the Meteors; Comets are not observed to have any constant or manifest Effect in increasing the Heat of the Seasons: tho' Droughts have been frequently observed to attend them. Bright Gleams of Light, Star-shoots, the Opening of the Firmament, and the like, appear oftener in Winter, than in Summer; and principally, during intense Cold, attended with Dryness; yet Lightning, Coruscations and Thunder seldom happen in the Winter; but usually in sultry Seasons. And those called Falling Stars, are commonly thought rather to consist of some shining, viscous Matter, set on Flame; than to be of any strong, fiery Nature. But this should be farther enquired into^q.*

A ninth; to the fourth.

Corrusca-
tions.

(9.) *There are certain Corruscations, which afford Light, but burn not: and these always happen without Thunder.*

A tenth; to the fifth.

(10.) *Eruclations and Eruptions of Flame, are found no less in cold Countries, than in hot ones; as in Iceland and Greenland: and Trees in*

^p This Experiment was tried by Dr. Hook; so far as to shew, that the Rays of the Moon are neither considerably hot nor cold: but the Matter may require to be farther examined, by Means of more accurate Instruments. See Hook's *Lectures of Light*, p. 80.

^q Consider of the *Aurora Borealis*, and other Appearances of Light in the Heavens.

in cold Countries are sometimes more inflammable, pitchy and resinous, than in hot ones; as the Fir, the Pine, &c. But in what Situation and Nature of Soil these kind of Eruptions usually happen, has not hitherto been so well examined, as to afford a Negative to the Affirmative¹.

An eleventh; to the sixth.

(11.) *All Flame is constantly hot, in a greater or less degree; so that Flame.* there is here no Negative at all subjoined: and yet they say that the Ignis fatuus has not much Heat; being, perhaps, somewhat like the Flame of Spirit of Wine; which is mild and gentle. But that Flame seems still milder, which some credible and grave Historians relate to have appeared upon the Heads of Children, without burning or singeing them; or only gently playing about their Hair. And, 'tis certain, that there has sometimes been seen a Coruscation, without manifest Heat, about a Horse, sweating in his Journey, by Night, in clear Weather. And Loaf-Sugar, and other Things hard candied, being broke or scraped with a Knife in the dark, yield Light: so does Sea-water, forcibly struck in Rowing; and the Froth of the Sea strongly agitated, in a Storm, by Night². But as to the Flame which the ancient Mariners call'd Castor and Pollux, and the Moderns term the Brothers; what kind of Heat it has, is not sufficiently known³.

A twelfth; to the seventh.

(12.) *Every Thing ignited to Redness, is perpetually hot, tho' with-Ignition.* out Flame; and to this Affirmative, there is no Negative subjoin'd: but what comes nearest to a Negative, seems to be rotten Wood; which shines by Night, without Heat; and the Scales of putrescied Fish, which also shine in the dark, yet are not hot to the Touch; no more than the Body of the Glow-worm, or the Lucciole or Light-fly.

A thir-

¹ See the Accounts of Burning Mountains, in the *Philosophical Transactions*, the *Foreign Journals*, Mr. Boyle's *Works*, &c. And observe, that, in all *Natural Enquiries*, Instances of various kinds, both on the negative and affirmative Side, are frequently wanting; or have not been collected, and recorded by Authors. Whence we see the Necessity of a *Sylva*, or particular Storehouse of Observations, and Experiments, to be used as the Materials in building a serviceable Philosophy.

² Consider of the vitreous Phosphori, or Glais rubbed in the dark; the Phosphorus of Urine, and all the other kinds of Phosphori; putrescied Flesh; putrescied Fish; Diamonds, &c. See Mr. Boyle upon *Phosphori*, and several Pieces, to the same Purpose, in the *Philosophical Transactions*, *French Memoirs*, &c.

³ See Vol. III. p. 322, 327, and 489.

A thirteenth ; to the eighth.

Hot Springs. (13.) *'Tis not sufficiently discovered, as to hot Springs, in what Situation and Nature of the Ground they usually flow ; and therefore no Negative is here subjoined^a.*

A fourteenth ; to the ninth.

Hot Liquors. (14.) *A Negative of the Nature of Fluidity, is subjoin'd to heated Fluids, from the Thing itself ; for there is no tangible Fluid known, that in its own Nature remains constantly hot^w : but Heat is superinduced upon it, for a Time only, as an adventitious Nature ; so that the Things most hot, potentially and operatively, as Spirit of Wine, distill'd aromatic Oils, Oil of Vitriol, &c. tho' they soon prove burning, are cold upon the first Touch. And the Water of hot Springs being received into a Vessel, and separated from its Fountain, grows cold ; like Water heated by the Fire. 'Tis true, that unctuous Bodies are somewhat less cold than Water, Silk than Linen, &c. But this belongs to the Tables of the Degrees of Cold^x.*

A fifteenth ; to the tenth.

Hot Vapours. (15.) *In like manner, a Negation of the Nature of Vapour, such as we find it with us, is subjoined to hot Vapours : for Exhalations from oily Bodies, tho' easily inflammable, are not perceived hot ; unless newly exhaled from the hot Body.*

A sixteenth ; to the tenth.

Hot Air. (16.) *So likewise, a Negative of the Nature of Air, is subjoined to hot Air : for Air is not found hot with us ; unless it be spout up, rubbed, or work'd together, or manifestly heated by the Sun, Fire, or other hot Body.*

A seventeenth ; to the eleventh.

Hot Seasons. (17.) *Here we subjoin a Negative, from the Seasons colder than agrees with the Time of the Year ; which Seasons happen with us upon East*

^a See Becher's *Physica Subterranea* ; and Hoffman's Pieces upon *Mineral Waters*.

^w Therefore, Fluidity is not of the Nature of Heat ; or, in other Words, Fluidity is not essential to Heat.

^x See below, *Aph.* 13.

East and North Winds ; as the contrary do upon West and South Winds. So a Tendency to Rain, especially in Winter, attends a warm Season ; and a Tendency to Frost, a cold one.

An eighteenth ; to the twelfth.

(18.) Here we subjoin a Negative, from the Air included in the Subterraneous same Vaults or Caves, during the Summer. But the Business of in-Air. cluded Air should be very carefully examined : for, first, it may be well doubted, what is the Nature of the Air itself, as to Heat and Cold ; since it manifestly receives Heat from the Impression of the Celestial Bodies ; and Cold, perhaps, from the Expirations of the Earth ; and, again, in that called the Middle Region of the Air, from the cold Vapours and Snow : So that no true Judgment can be made of the Nature of the Air, from the Air abroad, and unconfined ; but a better when it is shut up. And, here it is necessary to include it in such a Vessel, or Substance, as may neither communicate Heat nor Cold, by its own Nature, to the Air ; nor easily receive the Impression of the external Air. Let the Experiment, therefore, be made in an earthen Vessel, well covered with several Leathers, to defend it from the external Air ; keeping the Vessel well closed for three or four Days ; then opening it, to discover the Alteration, either by the Hand, or a good Thermometer, regularly applied.

A nineteenth ; to the thirtieth.

(19.) There is likewise a Doubt, whether the Warmth in Wool, Furs, Warmth of Plumage, and the like, proceed from some small Degree of Heat in-Wool, &c. berent in them, as they grow, or are thrust out by the Animals ; or from a certain fat, and unctuous Substance, which is of a Nature congruous to Warmth ; or whether, by shutting up, and breaking off the Communication of Air, as in the foregoing Article : for all Air, cut off from the Continuity of the external Air, seems to have something of Warmth. Let the Experiment, therefore, be tried in shaggy Stuffs, made of Linen, not of Wool, Feathers, or Silk ; which are animal Excretions. 'Tis likewise to be observed, that all Powders, which manifestly include Air, are less cold than the whole Substance they were

See Mr. Boyle's *History of Cold*, in init.

made from: and so we imagine, that all Froth, as containing Air, is less cold than the Liquor it is compos'd of^a.

A twentieth; to the fourteenth.

All Bodies
beatable.

(20.) *This has no Negative subjoin'd; for there is nothing found among us, whether tangible, or not tangible, which does not conceive Heat, when expos'd to the Fire: tho' the Bodies differ in this, that some conceive Heat sooner, as Oil, Air, and Water; and others slower, as Stone and Metal: but this belongs to the Table of Degrees^a.*

A twenty-first; to the fifteenth.

Flint and
Steel.

(21.) *There is no other Negative subjoin'd to this Instance, but to have it well observed, that no Sparks are produced by a Flint and Steel, or any hard Substance, without striking off some small Parts from the Substance of the Stone or Metal^b; and that the Attrition of the Air does not produce the Sparks as is commonly imagined; whilst the Sparks, by the Weight of the ignited Body, rather tend downwards than upwards; and, upon going out, become a kind of fuliginous Matter.*

A twenty-second; to the sixteenth.

Attrition
gives Heat.

(22.) *We judge that no Negative is producible to this Instance; for we find no tangible Body but what manifestly grows hot by Attrition: whence the Ancients imagined, that the celestial Bodies had no other Means, or Faculty, of growing hot, but by the Attrition of the Air, in their quick and rapid Revolutions. But here it should be farther enquired, whether the Bodies discharg'd out of Engines, as Bullets out of a Gun, do not acquire some Degree of Heat, from the Percussion; so as to be found hot after their Fall^c. But Air,*
in

^a Here, again, consult Mr. Boyle's *History of Cold*; tho' certain Experiments seem still wanting, to give a fuller Information in this Case. But we are not here so far to regard the Prosecution of the Enquiry itself, as to forget that the Thing propos'd is to give an Example of the Method of conducting Enquiries: tho' the Author has all along contriv'd to carry on the Enquiries themselves, at the same Time that he gives Examples.

^b See below, *Aph.* 13.

^c See Dr. Hook's *Micrographia*.

The Heat of a leaden Bullet, discharg'd barely by the Force of the Air, out of a Wind-Gun, against a metalline Plate, so as to become considerably flattened, has been found

in Motion, cools more than it heats; as appears from Winds, Bellows, &c. For this Motion is not so rapid as to excite Heat; and is a Motion of the Whole, not of the Particles: whence 'tis no wonder it should not generate Heat.

A twenty-third; to the seventeenth.

(23.) This Instance should be diligently enquired into; for all Herbs heat-
Herbs, and green and moist Vegetables, seem to contain some secret ing.
Heat; tho' so small, as to be imperceptible to the Touch in small
Portions: but when many are join'd, and close shut up together, so
that their Spirit cannot breath out into the Air, but the Parts must
mutually foment and cherish each other; a manifest Heat is pro-
duced; and sometimes a Flame, if the Matter be disposed thereto^d.

A twenty-fourth; to the eighteenth.

(24.) This Instance also should be carefully examined: for Quick- Quicklime
lime seems to conceive Heat, when Water is thrown upon it; either slaked.
by the uniting of the Heat, which was before scattered; as in the
Case of confined Vegetables, just now mentioned; or because the fiery
Spirit is irritated, or exasperated, by the Water, so as to make a
Conflict and Struggle. This Matter might be easily determined, by
using Oil instead of Water; because Oil would serve, as well as
Water, to unite, but not to irritate, the included Spirit. The Expe-
riment also should be extended, as well to the Ashes and the Calxes
of different Bodies, as to the Use of different Liquors^e.

A twenty-fifth; to the nineteenth.

25. This Instance has the Negative of all other Metals; which Metals in
are more soft and yielding: thus Gold dissolved in Aqua Regia, Lead Solution.
in Aqua Fortis, and Quicksilver in Aqua Regia, afford little Heat
to the Touch, in the Act of Solution^f: but Silver, and Copper, afford

found so great, as to burn the Fingers, when taken up directly. But it is not certain,
that Bullets acquire Heat, barely by moving through the Air. This might be commo-
diously tried with a Wind-Gun, and a proper Instrument for discovering a small Degree
of Heat.

^d See above, Tab. I. §. (17.)

^e See Mr. Boyle's Works, passim; and the Medicinal Use of Lime-Water, in the
French Memoirs, An. 1700.

^f See the History of Condensation and Rarification, Vol. III. Sect. VIII. p. 554, 555.

more; Tin still more; and Iron the most of all: and in the two latter, besides a strong Heat, there is also excited a violent Ebullition in the Dissolution. Whence the Heat seems to proceed from the Conflict; whilst the acid Spirits enter, force into, separate, and divide the Parts of the resisting Body: but where the Body yields easily, there is little Heat produced ^g.

A twenty-sixth; to the twentieth.

Heat of Animals.

(26.) To the Heat of Animals, we annex no Negative; except that of Insects, as was before observed ^h, on account of the Smallness of their Bodies. For Fish, compared with Land Animals, have rather a Degree of Heat, than a Privation. But in Vegetables and Plants there is no Degree of Heat perceptible to the Touch; neither in their Tears, nor in their medullary Parts, newly laid open. In Animals there is found a great Diversity of Heat, not only in their Parts (as the Heat of the Heart differs from that of the Brain; and this again from that of the external Parts;) but also with regard to Accidents; as in violent Exercise, Fevers, &c.

A twenty-seventh; to the twenty-first.

Heat of Excrements.

(27.) A Negative can scarce be subjoined to this Instance; since even the stale Excrements of Animals have a manifest potential Heat; as we see in the manuring of Land.

A twenty-eighth; to the twenty-second, and twenty-third.

Heat of

Menstruums.

(28.) Such Liquors, whether aqueous or oleaginous, as have a great and powerful Acrimony, produce the Effects of Heat, in the Separation and Burning of Bodies, after some Time; tho' at first such Liquors were not hot to the Touch. And these Liquors operate according to the Pores of the Body, whereto they are applied; for Aqua Regia dissolves Gold, and not Silver; Aqua Fortis dissolves Silver, and not Gold; but neither of them dissolves Glass: and so of Liquors ⁱ.

A twenty-

^g The other Solutions and Mixtures, wherein Heat is generated, might also be produced as Instances to the present Purpose. See the Chapter of Fire, in Beerbaave's Chemistry.

^h See above, Tab. I. §. (20.)

ⁱ See the Chapter of Menstruums, in Beerbaave's Chemistry.

A twenty-ninth ; to the twenty-fourth.

(29.) Let Trial be made of Spirit of Wine upon Wood, Butter, ^{Spirit of} Wax, or Pitch ; whether, by its Heat, it will, in some degree, ^{Wine.} dissolve them : for the twenty-fourth Instance shews, that Spirit of Wine has a Power resembling that of Heat, in Scorching ; and therefore, let the Experiment be made also in Liquefaction. Let Trial likewise be made by a Water-Thermometer, with a Hollow in the Top, on the outside ; and pour high rectified Spirit of Wine into that Hollow ; then cover it, the better to keep in the Heat ; and observe whether it makes the Water fall or rise ^k.

A thirtieth ; to the twenty-fifth.

(30.) Spices, and Plants that prove acrimonious to the Palate, ^{Aromatics.} are found much hotter when taken internally : let it therefore be considered in what other respects they may have the Effect of Heat. 'Tis related by Sailors, that when large Parcels of Spices, which have been long kept close confin'd, come to be opened, those who first take them out, run the hazard of catching Fevers, and Inflammations of the Spirits. Trial, therefore, might be made whether the Powders of such Spices and Herbs would not, like the Smoak of a Fire, dry Bacon or Fish hung over them.

A thirty-first ; to the twenty-sixth.

(31.) There is an Acrimony or Pugnacy both in cold Things, ^{Cold Things.} such as Vinegar and Oil of Vitriol ; and in those potentially hot, such as Oil of Origanum, &c. whence they both alike cause Pain in animate Bodies ; and separate and consume the Parts in such as are inanimate. Nor is any Negative annexed to this Instance. But there is no Pain in Animals, without a certain Sensation of Heat.

A thirty-second ; to the twenty-seventh.

(32.) There are many Actions in common to Heat and Cold, tho' ^{Some Acti-} they differ greatly in the Manner. Thus Snow seems to burn soon ^{ons common} after it is handled ; Cold preserves Flesh from Putrefaction, as ^{to Heat and} well ^{Cold.}

^k See the Chapter of Fire, in Boerhaave's Chemistry.

well as the Fire; and Heat makes some Bodies shrink, as well as Cold. But 'tis more proper to refer these and the like Instances to the Enquiry about Cold¹.

APHORISM XIII.

*A third Table
to be formed.*

26. In the *third* Place, those *Instances* must be brought before the Understanding, in which the Nature enquired after resides, according to the Degree of more or less; whether the Comparison of Increase and Decrease be made in the same Subject, or respectively in different Subjects: for as the *Form* of a Thing, is the very Thing itself; or as a Thing differs not from the *Form*, otherwise than Appearance does from Existence, External from Internal, or with respect to Man, and with respect to the Universe^m; it follows, that no Nature should be received as a true *Form*, unless it perpetually decrease when the Nature decreases; and perpetually increase when the Nature increases. The *Table* representing this, we therefore, call the TABLE OF DEGREES, or the *Table of Comparison*.

*The comparative Degrees of
Heat.*

27. We shall first, therefore, consider such Things, as to the Touch shew no Degree of Heat at all; but seem only to have a certain *potential Heat*, or a Disposition and Preparation towards actual Heat: and next proceed to such as are *actually* hot, or hot to the Touch; and observe their different Strengths, or Degrees.

TABLE III.

A TABLE of the DEGREES of HEAT.

No Matter
hot in itself.

(1.) **A**mong all the solid and tangible Bodies, there is nothing found originally hot, in its own Nature; no Stone, Metal, Sulphur, or other Fossil; no Wood, Water, or animal Carcass: for the Water of hot Wells seems to be heated accidentally, either by Flame, or subteraneous Fire, such as is thrown up by *Ætna*, and many other burning Mountains; or else by the Conflict of Bodies; as Heat is produced

¹ See Mr. Boyle's History of Cold.

^m These Expressions may give us a fuller Information, as to what the Author means by *Forms*.

produced in the Dissolutions of Iron or Tinⁿ. Therefore to the human Touch, there is no degree of Heat in inanimate Bodies. And those we have mentioned also differ in degree of Heat; for Wood is not so cold as Iron. But this belongs to the Table of Degrees, for the History of Cold.

(2.) But for *potential Heats and Dispositions to Flame*, there are numerous inanimate Bodies found greatly disposed thereto; such as Sulphur, Naphtha, and Petreol. Potential Heats.

(3.) The Bodies that are previously heated, as Horse-dung in the Animal, Quick-lime, and perhaps Ashes or Soot, by the Fire; retain some secret Remains of their former Heat: whence certain Digestions, Distillations and Separations are made of Bodies by burying them in Horse-dung; and thus Heat is excited in Quick-lime, by throwing Water upon it, as was above observed^o.

(4.) Among Vegetables there is no Plant, or part of a Plant, whether the excreted Tear, or internal Pitch, found hot to the human Touch: but green Plants, as above instanced, become hot by Pressure; and some Vegetables are found hot, others cold, to the internal Touch, viz. to the Palate or Stomach, or even to the external Parts, after continuing applied for some time; as we see in Plaisters and Unguents &c.

(5.) There is nothing found hot to the human Touch in the Parts of Animals after Death, or after Separation from the Body. Even Horse-dung retains not its Heat, unless it be press'd together and buried; yet all Dung seems to have a potential Heat, as appears from Composts and Manuring. In like manner, the Carcasses of Animals have a latent and potential Heat; insomuch that in the Church-yards where Burials are frequent, the Earth collects a certain Heat, which consumes a Carcass newly laid in it, much sooner than mere Earth^q. And 'tis reported that the People of the East have a certain fine, soft Cloth, made of Birds Feathers, which by its native Heat will dissolve Butter, gently wrapt up therein^r.

(6.) Those

^o See above, Tab. II. §. (26.) Consider also of the spontaneous Heating of Marcassites with Water; Iron Filings and Sulphur, moisten'd with Water; and other Instances of this Nature.

^q Tab. I. §. (18.) and Tab. II. §. (24.)

^r Thus the Emp. Epispastic. Emp. Stomachic. magistral. Emp. de Cymino. Ung. Martiat. Ung. Mastichin. &c. are heating; and Emp. de Ranis cum Mercurio, Emp. de Cicuta; Ung. Nutritum, Ung. Populnæum, &c. are cooling.

^s Is the Fact sufficiently verified?

^t This may require farther Confirmation.

(6.) *Those Things that mend Land, such as Dungs of all sorts, Chalk, Sea-sand, Salt, &c. have some Disposition to Heat.*

Putrefaction
attended with
a latent Heat.

(7.) *All Putrefaction is attended with some small Tendency to Heat; tho' not so much as to be perceived by the Touch: for neither those Things, which when putrefied, turn to Animals, as Flesh, Cheese, &c. are found hot to the Touch; nor rotten Wood that shines in the dark: but Heat sometimes discovers itself in Putrefactions, by highly fetid and abominable Odours.*

The first De-
gree of Heat,
that of Ani-
mals.

(8.) *The first degree of Heat, therefore, of those Things which feel hot to the human Touch, seems to be that of Animals; which has no very great Extent in its Degrees: for the lowest, as in Insects, is scarce perceptible to the Touch; and the highest scarce equals the Heat of the Sun, in hot Countries and Seasons; nor is it so great but the Hand may endure it: tho' 'tis related of Constantius and some others, of a very dry Habit of Body, that they have been so hot in acute Fevers, as in a manner to burn the Hand applied to them.*

Different
Heats of A-
nimals.

(9.) *Animals have their Heat increased by Motion, Exercise, Wine, high Feeding, Venery, burning Fevers, and by Pain.*

(10.) *Men in the Fits of an Intermitting Fever, are first seized with Cold and Shivering; and soon after grow very hot: but they continue hot from the beginning, in burning and pestilential Fevers.*

(11.) *Let farther Enquiry be made of the comparative Heat in different Animals; as Fish, Quadrupeds, Serpents and Birds: and again, in their different Species; as in Man, the Lion, the Kite, &c. for according to common Opinion, Fish have little Heat in their inward Parts; but Birds a great deal; especially Pigeons, Hawks and Estriches.*

(12.) *Farther*

* Except that of Geese, according to vulgar Observation.

* But is this Disposition greater than that of many Things which do not mend Land? And, in this Light, what is to be said of Nitre?

* Nor, as is said, by a Thermometer, applied to a putrefying animal Carcass; tho' this may require to be more exactly tried.

* The Argument seems conclusive; for Odours, perhaps, cannot exist without a certain Degree of Heat. See *Boerhaave's Chemistry*, under the Chapter of Fire; and the *Process of Putrefaction*. See also *Mr. Boyle's Works*, passim.

* This seems to be no unfrequent Case; when inflammatory Fevers happen in robust and sanguine Constitutions; if by burning the Hand, be meant a disagreeable, or somewhat painful Sensation of Heat.

(12.) Farther Enquiry should likewise be made, as to the comparative Heat of the same Animal, in its different Parts and Limbs; for Milk, Blood, Sperm, and Eggs, are found moderately tepid, or less hot than the outward Flesh of the Creature upon Exercise, or when moved, or excited; but it has not hitherto been examined what the Degree of Heat is in the Brain, Stomach, Heart, &c.

And different Parts of the same Animals.

(13.) All Animals are externally cold in the Winter, and cold Seasons; but are then thought to be hotter within.

(14.) The Heat of the celestial Bodies, even in the hottest Countries, and hottest Times of the Year and Day, is not able to fire the driest Wood, Straw, or Tinder; unless strengthen'd by the Burning Glais: tho it may raise a Vapour from moist Matters.

The Heat of the celestial Bodies.

(15.) According to the Tradition of Astronomers, some Stars are more, and others less hot. Among the Planets, Mars is said to be the hottest, or next to the Sun; then Jupiter; and then Venus: but the Moon is supposed to be cold; and Saturn the coldest Planet of all. Among the Fixed Stars, Sirius is supposed the hottest; then Cor Leonis; then the lesser Dog-Star, &c.

(16.) The Sun proves hotter to us, the nearer he comes to the Perpendicular, or Zenith; and the same is to be understood of the Planets, according to their different Degrees of Heat. For Example, Jupiter proves much hotter to us when he is in Cancer or Leo, than when in Capricorn or Aquarius.

(17.) 'Tis to be supposed that the Sun, and all the Planets heat more in their Perigee, when they are nearest the Earth, than in their Apogee, when they are farthest from it: but where-ever the Sun is at the same time both in its Perigee, and nearest the Zenith, it must necessarily be hotter, than where the Sun is in its Perigee, but farther distant from the Zenith. So that the comparative Ascensions of the Planets must be here regarded, as they approach to, or recede from the Perpendicular, in different Countries.

(18.) The Sun and Planets are supposed hotter in their Appulse to the larger Fixed Stars. So when the Sun is in Leo, 'tis nearer the Cor Leonis, the Cauda Leonis, Spica Virginis, Sirius and Canicula, than when in Cancer; where yet it is nearer the Zenith. And

¹ Suppose, by what is called *Antiperistasis*; but this does not, perhaps, appear by the Thermometer. See Mr. Boyle's *History of Cold*; and Dr. Boerhaave's *Chemistry*; under the Chapter of *Fire*.

² The direct Rays of the Sun are said to be capable of melting Lead, in certain Climates; or even to fire the Houses. See Boyle, *Abridgm.* Vol. III. p. 55, &c.

'tis to be supposed that those Parts of the Heavens give the greatest Heat, tho' not perceptible to the Touch, that are fullest of Stars, especially Stars of the first Magnitude.

How increased.

(19.) The Heat of the Celestial Bodies is increased three Ways; viz. (1.) by their Perpendicularity; (2.) their Nearness of Approach, or Perigee; and (3.) by the Stars lying thick together.

A Difference in Degree betwixt the milder Heats.

(20.) There is a very great Difference found between the Degree of Heat in Animals, and that of the Celestial Bodies, as it affects us, on the one side; and the mildest Flame, all ignited Bodies, or even Liquors, and the Air itself, much heated by the Fire, on the other: for the Flame of Spirit of Wine, even tho' diffused and uncollected, is able to burn Straw, Linen, or Paper; which animal Heat will not do; nor solar Heat, without the Assistance of the Burning-Glass.

The Degrees of Heat indicated.

(21.) But there are numerous Degrees of Strength and Weakness of Heat, in Flame, and Bodies ignited; tho' as no careful Enquiry has been made about them, we are obliged to pass them lightly over.

(1.) The Flame of Spirit of Wine seems to be the softest; unless we except the Ignis Fatui, and the Corruscations of sweating Animals.

(2.) The Flame of Spirit of Wine, we judge, is succeeded by the Flame of porous and spongy Vegetables; as Straw, Rushes, and dried Leaves; from which the Flame of Hair or Feathers does not greatly differ.

(3.) Next to this, perhaps, may follow the Flame of Wood; especially of such as abounds not in Rosin or Pitch: but the Flame of Brush-Wood, or Twigs, (which are commonly bound up into Faggots,) is more gentle than that yielded by the Trunks and Roots of Trees; as is found by Experience, in the Furnace for melting Iron from the Stone; where small Wood is of little Service. (4.) Next to this comes, in our Estimation, the Flame of Oil, Tallow, Wax, and the like unctuous and fat Bodies; which have no great Acrimony. (5.) But a stronger Heat is found in Pitch and Rosin. And, (6.) a still stronger in Sulphur, Camphire, Naphtba, Petreol, and Salts, after their crude Matter is discharged; and in the Compositions hereof; as in Gun-powder, and Wild-fire of different Kinds; which have so stubborn a Heat, that Water can hardly extinguish it.

Metallic Flames.

(22.) (7.) We suppose also, that the Flame arising from certain Kinds of imperfect Metals is exceeding strong and sharp^a; but of this a farther Enquiry should be made.

(23.) (8.) The

^a As in making the common Regulus of Antimony; Prince's Metal, with Zink and Copper; and many other metallurgical Experiments.

(23.) (8.) *The Flame of strong Lightning seems to exceed all the Lightning former; so as sometimes to melt perfect Iron itself, into Drops; which those other Flames cannot do.*

(24.) (9.) *There are also different Degrees of Heat in Bodies ignited; tho' these likewise have not hitherto been diligently enquired into. The weakest Heat of this kind we take to be, (1.) that of Tinder; and the Match used in the firing of great Guns; after which come (2.) ignited Char-Coal, Pit-Coal, Brick, &c. but, (3.) the hottest of all ignited Bodies seem to be Metals; as, Copper, Iron, &c. tho' farther Enquiry should be made about them.*

The Degrees of Heat in ignited Bodies.

(25.) *Some ignited Bodies are found much hotter than some Flames: Ignited Bodies compared with Flames.*

(26.) *There are also some Bodies, which, tho' un-ignited, and only heated by the Fire; such as boiling Water, and Air pent up in Reverberatory Furnaces; are hotter than many Flames, and Bodies ignited.*

(27.) *Motion increases Heat; as appears by Bellows and Blow-pipes; insomuch that the hardest Metals will not melt in a dead, or still Fire, that is not animated by the Blast.*

Heat increased by Motion.

(28.) *Let Trial be made with the Burning-glass: for, as I remember, if the Glass be held, for Example, at the Distance of ten Inches from a combustible Body, it will not then burn so much, as if it be first placed at the Distance of five Inches; and then be gradually and slowly drawn away to the Distance of ten; tho' the Collection and Cone of Rays remain the same: the bare Motion thus increasing the Effect of the Heat.*

(29.) *Those Conflagrations which happen in the Time of a strong Wind, are thought to advance faster towards the Wind, than from it: because the Flame recoils swifter when the Wind slackens, than it advances forwards when the Wind drives it.*

Conflagrations strongest against the Wind.

(30.) *Flame proves strong, vigorous, and generative, only when it finds some Cavity wherein to move, and play, and exert itself; except the statulent Flame of Gun-powder, and the like; where Compression and Confinement increase its Force.*

Strong Flame requires a Cavity, or Confinement.

(31.) *The Anvil grows very hot by the repeated Strokes of the Hammer; so that if it were thin, we judge it might be ignited by strong and successive Strokes: but this remains to be tried^b.*

Iron heated by the Hammer.

^b 'Tis certain, that a Piece of Iron has, by various Strokes of the Hammer, nimble repeated, been soon made to appear red hot; insomuch, that this is sometimes accounted no bad Expedient for lighting a Fire, among Nailors, and those Workers in Iron who use a quick Hammer. See Dr. Hook's *Lectures of Light*, p. 117.

Fire extinguished by strong Compression.

(32.) But in such ignited Bodies as are porous, and afford Space enough for the Fire to move in; if the Fire's Motion be curbed by a strong Compression, the Fire is immediately extinguished: as when Tinder, or the burning Wick of a Lamp, a flaming Coal, &c. is squeezed by the Foot, or the like; upon which the Effects of the Fire presently cease.

Heat increased by Approach.

(33.) The Approach of a hot Body increases Heat, according to the Degree of Nearness; and the Case is the same in Light: for the nearer an Object is placed to the Light, the more visible it becomes.

By Union.

(34.) The uniting of different Heats increases Heat; unless the Bodies come to be mixed: for a great Fire and a small one being near each other, somewhat increase each others Heat: but warm Water put into boiling Water, cools it.

By Continuance.

(35.) The Continuance of Heat in a Body, increases Heat: For Heat, thus perpetually flying off, is mixed with the Heat before existing; so as to multiply the Heat. Thus a Fire kept up for half an Hour, does not heat the Room so much, as if the same Fire were kept up for an Hour. But this is not the Case in Light; for a Lamp does not enlighten a Room more, by long continuing to burn, than when it is first lighted.

By Cold.

(36.) External Cold increases Heat: for we find that Fire scorches violently in frosty Weather. This, we conceive, happens not only from the Heat being shut up and contracted, which is a kind of Union^c; but also by Irritation. Thus when the Air, or any elastic Body, is violently compressed or bent; it recoils not only to the Point it was forced from, but beyond it. Therefore let careful Trial be made, by placing some combustible Material in Flame, to shew whether it will not be burnt sooner on the Surface, than in the midst of the Flame^d.

The Degrees of Reception of Heat.

(37.) There are many Degrees in the Reception of Heat. And first it is to be observed, how small and slender a Heat may somewhat change, and a little warm those Bodies which are least of all susceptible of Heat. For the Heat of the Hand will warm a Bullet of Lead, or any other Metal, held for a while in it: so easily, and in all Cases, is Heat transmitted, and excited; tho' the Body, to Appearance, seems no way changed.

In Air.

(38.) But of all Bodies that we know, Air the easiest receives and communicates Heat; as appears by Weather-Glasses; which are made thus. Take a bellied Glass, with a long and slender Stem; and invert the

Weather-Glasses, how made,

^c See above, §. (34.)

^d See Dr. Hook's Lectures of Light; and Discourse of Comets. See also hereafter, Aph. 20.

the Nib of it into another glass Vessel of Water; so that the Aperture of the first Glass may touch the bottom of the second; whilst the Stem is supported a little by the Mouth of the under Glass, so as to stand, without having its Orifice entirely closed. And the better to effect this, apply some Wax to the Mouth of the under receiving Glass; but so as not to stop this up neither. Before the bellied Glass is inverted into the other, let its Belly be heated at the Fire; and when placed, as above-mentioned, the Air which was dilated by the heating, will contract itself (after the adventitious Heat is gone) to an equal Dimension with that of the external or common Air, at the Time; and raise the Water upwards in the same Proportion. And now, when a Scale of Degrees, made upon a long Slip of Paper, is pasted along the Stem; according as the Weather grows hotter or colder, the included Air will contract with the Cold, and expand with the Heat; and shew the Effect; by the Ascent of the Water, when the Air is contracted; and by the Descent thereof, when the Air is expanded. But the Sensibility of the Air, in respect of Heat and Cold, is so subtle and exquisite, as far to exceed the Perception of the human Touch; insomuch, that a Ray of the Sun, or the Warmth of a Man's Breath, much more the Heat of one's Hand, placed upon the Top of the Glass, will immediately cause the Water manifestly to sink*. Tho' we conceive that the Spirit of Animals has a still more exquisite Sense of Heat and Cold; unless it be obstructed and blunted by the grosser Matter of their Bodies.

(39.) Next to Air, we judge those Bodies to be most sensible of Heat, The Scale of which are newly changed, and compressed, by Cold; such as (1.) Snow Bodies most and Ice: for these begin to relent and dissolve with any gentle Heat. susceptible of (2.) After these, perhaps comes Quicksilver: After this comes (3.) fat Heat and Cold. Bodies; such as Oil, Butter, &c. (4.) Wood; (5.) Water; (6.) and lastly, Stones and Metals: which do not easily heat, especially within; tho' they very long retain the Heat they have once received; so that a red-hot Brick, Stone, or piece of Iron, quenched in a Basin of cold Water, retain such a Heat, for some Minutes after, that they cannot be handled.

(40.) The less Bulk a Body is of, the sooner it conceives Heat, by Heat averse the approach of a hot Substance: which shews that all Heat with us is to tangible Bodies in a manner averse to tangible Bodies†.

(41.) Heat

* For the Improvement of Thermometers, see Mr. Boyle's History of Cold; and Dr. Hook's Works, passim. See also Dr. Boerhaave's Chemistry.

† As being readiest communicated in the smallest, and perhaps the most rarified Bodies.

(41.) Heat, to the Sense and human Touch, is an undetermin'd, relative Thing; so that warm Water shall seem hot to a cold Hand; and cold, if the Hand be hot &c.

* See Mr. Boyle's *History of Cold*, in init.

APHORISM XIV.

Natural History defective. 28. How unprovided we, at present, are in *Natural* and *Experimental* History, may be easily observed from hence; that in the preceding *Tables* we are frequently obliged to direct Experiments, and farther Enquiry to be made into Particulars; and that instead of *approved History*, and such *Instances* as may be depended upon, we are sometimes driven to insert *Traditions* and *Relations*; tho' we do this always with a manifest doubting of their Truth and Authority^a.

APHORISM XV.

Use of the preceding Tables. 29. The Office and Use of these three *Tables*, is, to present a *View of Instances to the Understanding*. And when this *View* is procured, the Business of *Induction* is to be put in Practice. For, upon a particular and general View of all the *Instances*, such a Nature is to be discovered, as may be continually present, or absent, and always increase and decrease, with that Nature; and, as we above laid down, limit the more common Nature^b. But if the Mind should attempt to do this affirmatively from the first, as it uses to do when left to itself, there presently rise up Phantoms and notional Hypotheses, ill defined; and Axioms that daily require a mending-hand; unless, after the Custom of the Schools, we would contend for Falseness: tho' doubtless these Axioms would be better or worse, according to the Powers and Strength of the Understanding that formed them. God, the great Giver and Creator of *Forms*, doubtless, knows them, by immediate Affirmation, at the first Glance of the Understanding; and so, perhaps, may Angels, and such sublime Intelligences: but this far exceeds the human Capacity; which can only first proceed by Negatives, and lastly, after a perfect Exclusion, end in Affirmatives.

Forms known intuitively to sublime Intelligences.

APHORISM XVI.

The Business of genuine Induction. 30. We must, therefore, make a perfect Resolution and Separation of Nature, not by Fire, but by the Mind; which is, as it were, the divine Fire.

^a Little Progress can be expected in *Philosophy*, and the *Sciences*, till an ample and exact *History of Nature and Art* is procured; out of which, as out of a Storehouse, Particulars should be drawn, as they come to be wanted, in all Enquiries.

^b See above, *Part II. Aph. 4.*

Fire. And thus the first *Work of genuine Induction*, in the Discovery of *Forms*, is to throw out, or exclude, such particular Natures, as are not found in any *Instance*, where the given *Nature* is present: or such as are found in any *Instance*, where that *Nature* is absent: and again, such are found to increase in any *Instance*, when the given *Nature* decreases; or to decrease when that *Nature* increases. And then, after this Rejection and Exclusion is duly made, the affirmative, solid, true, and well defined *Form*, will remain as the Result of the Operation; whilst the volatile Opinions go off in *Fume*^c. And this is easily expressed in Words; but the Thing itself cannot be come at, without numerous Turnings and Windings. We will, however, endeavour not to omit any one Step that conduces to the End.

APHORISM XVII.

31. But here a general Caution, or *perpetual Admonition*, must be given; *The Notion of* left, as we seem to attribute so much to *Forms*, what we say of them *Forms*, li- should be understood of such *Forms*, as Men have hitherto accustomed *misled*. themselves to consider^d.

32. For, (1.) we do not at present speak of compound *Forms*, that is, *These Forms* Combinations of simple Natures, according to the common Course of *simple*. the Universe; as the *Form* of an Eagle, a Lion, a Rose, Gold, &c. the Time of treating which will be, when we come to *conceal'd Processes* and *secret Textures*; and the Discovery of them, as they are found in those call'd Substances, or concrete Natures^e.

33. (2.) And even in the Case of simple Natures, we must not be *Not ideal*. understood to mean any abstract *Forms*, or Ideas, that are either undetermined, or ill determined in Matter. For when we speak of *Forms*, we mean no other than *those Laws and Determinations of pure Action*, which regulate and constitute any simple Nature; as Heat, Light, and Gravity; in all Kinds of Matter, and Subjects, susceptible thereof: and therefore the *Form* of Heat, or the *Form* of Light, is the same Thing as the *Law* of Heat, or the *Law* of Light: for we perpetually keep close to Practice, and Things themselves^f; and therefore when we say, for Example, in the Enquiry

^c The Metaphor seems taken from the Operation of Testing, or the Way of Refining, or Assaying Gold and Silver Ores, with Lead; which very appositely illustrates this Method of *Induction*: the Lead, some way or other, carrying off with it, whatever is volatile, or vitrifiable, and not true Gold or Silver. For thus, the proper Sett of *Instances* being procured, (like an Ore, wherein the nobler Metals are contained,) they are tried by *Induction*, as in the Furnace; so as to leave the true *Form* behind, like a Brill of Gold or Silver, upon the Test.

^d *Viz.* The Peripatetic, or notional *Forms*, &c.

^e See *de Augment. Scientiar.* p. 84.

^f Certainly this Caution has not been sufficiently observed; whence many have conceived this *Second Part* of the *Novum Organum* to be rather a deep, or, according to the vulgar Expression, a metaphysical Speculation, than a Thing directly tending to Operation; or, what is in reality, with regard to the Mind, *Practice itself*.

Enquiry into the Form of Heat, *reject Tenuity^g, or Tenuity is not of the Form of Heat*; 'tis the same as if we said, *Men may superinduce Heat, upon a dense Body*; or, on the other hand, that *Men may take away Heat from a rare one^h*.

Nor too abstracted.

34. (3.) And if any one shall think that our *Forms* have somewhat abstracted in them, because they appear to mix and join together Things that are heterogeneous; as the Heat of the Celestial Bodies, and the Heat of Fire; the fixed Redness of a Rose, and the apparent Redness of the Rainbow, the Opal, or the Diamond; Death by Drowning, and Death by Burning, Stabbing, the Apoplexy, Consumption, &c. which, tho' very dissimilar, we make to agree in the Nature of Heat, Redness, Death, &c. he must remember, that his own Understanding is held and detained by Custom, Things in the gross, and Opinions. For, it is certain, that the Things abovementioned, however heterogeneous and foreign they may seem, agree in the *Form*, or *Law*, that ordains *Heat*, *Redness*, and *Death*. Nor can the human Power be otherwise freed, and set at Liberty from the common Course of Nature, and extended and exalted to new Efficients, and new Ways of working, than by disclosing and investigating this Kind of *Forms*. But after treating of this *Unity of Natureⁱ*, which is a most capital Thing; we shall proceed to the true Divisions and Paths of Nature, as well the ordinary as internal^k.

APHORISM XVIII.

The Exclusion, or Rejection of those Natures, not belonging to the Form of Heat.

35. But we are next to propose an *Example of the Exclusion or Rejection of those Natures*, which by the *Tables of View*, are found not to be of the *Form of Heat*; admonishing, by the way, that not only each *Table* suffices for the Rejection of any Nature; but also every single Instance, contained in each *Table*: for it is manifest, from what goes before^l, that any one contradictory Instance destroys the Notion of *Form*. However, for Clearness sake, we sometimes double or repeat the Exclusion; the better to demonstrate the Use of the *Tables*.

^g See below, *Table IV.* §. 8.

^h It cannot be too well remember'd, nor, perhaps, sufficiently inculcated, that *Theory* and *Practice*, in the Mind, are but one and the same Thing; or differ no more, in any respect, than as Cause and Effect, or Rule and Work.

ⁱ See above, *Part II.* *Aph.* 3.

^k See below, *Self. II.* *passim*.

^l See in particular, *Aph.* 4, 16, &c.

TABLE

TABLE IV.

AN EXAMPLE of the EXCLUSION, or REJECTION,
of NATURES, from the FORM OF HEAT.

(1.) **B***Y the Sun's Rays ; reject Elementary, or Terrestrial Nature, from the Form of Heat^a.*

(2.) *By common Fire ; and principally by the subterranean Fires, which are very remote, and entirely cut off from the celestial Rays ; reject celestial Nature.*

(3.) *By the heating of all kinds of Bodies, whether mineral, vegetable, or animal ; whether Water, Oil, Air, &c. upon the bare Approach of Fire, or other hot Body ; reject all Variety, or subtile Texture of Bodies.*

(4.) *By Iron, and ignited Metals, which heat other Bodies, without Loss of Weight, or Substance ; reject Communication, or Mixture of any other hot Substance.*

(5.) *By hot Water, hot Air, Metals, and other solid Bodies that will receive Heat without Ignition ; reject Light and Splendor.*

(6.) *By the Rays of the Moon, and Stars, except the Sun ; again, reject Light and Splendor.*

(7.) *By the Comparison of ignited Iron, and the Flame of Spirit of Wine ; whence the Iron appears to be hotter and less lucid, but the Flame of the Spirit more lucid and less hot ; again, reject Light and Splendor.*

(8.) *By Gold and other ignited Metals, which are very dense in their entire Substance ; reject Tenuity.*

(9.) *By Air, which is generally found cold, and yet remains thin and subtile ; again, reject Tenuity.*

(10.) *By ignited Iron, which swells not in Bulk, but remains of the same Dimension to Appearance^b ; reject local, or expansive Motion in the whole.*

^a That is, since the Sun's Rays are found to be hot ; a terrestrial or elementary Nature is not of the *Form of Heat* ; or Heat is not confined to terrestrial or elementary Bodies. See below, *Aph.* 19. and 20. (31.)

^b Tho' not upon exact Trials. Let it be consider'd how justly this Expansion, or Rarification of the whole Body, has been made by some the universal *Criterion*, or *Form of Heat*. See below, *Aph.* 20. (8.) (15.) (13.) (26.)

(11.) *By the Dilatation of the Air in Weather-Glasses, and the like; where the Air is evidently moved locally, and expansively, without becoming manifestly hotter; again, reject local or expansive Motion in the whole.*

(12.) *By the Facility wherewith all Bodies are warmed, without Destruction, or remarkable Alteration; reject Destruction, and great Communication of any new Nature.*

(13.) *By the Similitude and Conformity of certain Operations, performed both by Cold and Heat; reject as well expansive as contractive Motion, in the whole.*

(14.) *By Fire following Heat upon the Attrition of Bodies; reject principal Nature, that is, a positive Nature, not caused by a precedent one.*

N. B. There are also other Natures to be excluded: for our Tables are not designed as perfect, but only as Examples.

N. B. Neither all, nor any one of the preceding Natures, are of the Form of Heat: so that Men in their Practices upon Heat, are freed from the Necessity of introducing any, or all of them^c.

^c Observe how this Investigation of Forms, corresponds to a just Practical Rule, (for producing unlimited Effects,) laid down above, under *App. 4.* (5. and 6.) If due Attention has been used, the Reader will now begin to see the Scene open; and find Cause to expect more considerable Things from the human Power and Knowledge, than have hitherto been produced by any Philosophers unacquainted with the true Method of Enquiring into Nature, by the Means of this *New Engine* of the Mind.

APHORISM XIX.

*Exclusion
leads to In-
duction.*

35. The Business of *Exclusion* lays the Foundations for a genuine *Induction*; which, however, is not perfected till it terminates in the Affirmative: but our *Exclusion* is by no means perfect; nor can it possibly be so at first. For *Exclusion*, as we plainly see, is the Rejection of *simple Natures*; and if we have hitherto no just and true Notion of *simple Natures*, how can the Business of *Exclusion* be rectified? But some of the above-mention'd Notions, as those of *Elementary Nature*, *Celestial Nature*, and *Tenuity*^d, are vague and ill defined. Wherefore, not forgetting how great a Task we have undertaken; *viz.* no less than that of rendering the *human Understanding* equal to *Things* and *Nature*; we are by no means to stop here; but must proceed to invent and afford greater *Helps* to the Mind. For, doubtless, in the *Interpretation of Nature*, the Mind is to

^d See Table IV. §. 1, 2, 7.

to be so prepared and formed, that it may both rest upon proper Degrees of Certainty; and yet conceive, especially in the Beginning, that the Things which are present, have a great Dependence upon those behind^c.

APHORISM XX.

36. And yet, because Truth will sooner emerge from Error, than *Permission to* from Confusion; we judge it useful to allow the Understanding, after having *the Under-* made and considered the three *Tables of preparatory View*; in the Manner *standing; or* we have laid them down; to apply itself, and attempt the Business of *the first Vin-* *Interpreting Nature in the Affirmative*; on the Strength of the Instances *stage of En-* *quiry.* contained in these *Tables*; and such as may be otherwise procured. And this kind of Attempt, we call a *Permission to the Understanding*, the *Rudi-* *ments of Interpretation*, or the *first Vintage of Enquiry*^f.

^e See above, Part I. Aph. 130. *ad finem*.

^f The first Vintage, in Wine-Countries, produces the poorest Wines; which they usually distil, for Brandy; as being not fit to keep, in the Form of Wines.

TABLE V.

The First VINTAGE, or Dawn of Doctrine, from the
FORM OF HEAT.

(1.) **I**T appears from the preceding Doctrine, that the Form of a Thing resides in all the particular Instances, wherein the Thing resides; otherwise it would not be a Form^a: and therefore no contradictory Instance hereof can be given.

(2.) Yet the Form is found much more conspicuous in some Instances, than in others; especially in those where the Nature of the Form is less confined, obstructed and subdued by other Natures: and this Kind of Instances we call shining or glaring Instances^b. And thus we now proceed to reap the First Fruits of our Enquiry after the Form of Heat, in the Way of Example.

(3.) In all the Instances, considered as well separately as collectively, the NATURE WHOSE LIMITATION IS HEAT, APPEARS TO BE MOTION^c. This we find chiefly in Flame,

The Form found more eminently in some Instances, than in others.

Motion the Form of Heat.

^a See above, Part II. Aph. 4.

^b See below, Sect. II. Aph. 24.

^c See above, Aph. 4.

which is in perpetual Motion; and in hot, or boiling Liquors, which are also in a continual Agitation. It likewise appears, by the Sharpness or Increase of the Heat, caus'd by Motion; as in Bellows and Blasts^d: and again, in other Kinds of Motion; for which see the twenty-eighth and thirty-first Instances of the Third TABLE. 'Tis found also in the Extinguishing of Fire, and Heat, by all strong Compression, which checks and puts a stop to Motion. See the thirtieth and thirty-second Instances of the Third TABLE. Again, it is shewn by this, that all Bodies are destroy'd, or at least remarkably alter'd, by all kinds of Fire, or strong or vehement Heat. And from hence it plainly appears, that Heat causes a Tumult, Disturbance, and brisk or eager Motion in the internal Parts of Bodies; which gradually tends to a Dissolution of the Body.

Or its Genus. (4.) What we have thus said of Motion, is to be understood of it, as of a Genus^e, with regard to Heat: and not as if Heat generated Motion; or as if Motion generated Heat; tho' this may be true in some Cases: but the Meaning is, that Heat itself, or the very Existence of Heat, is Motion, and nothing else^f; tho' Motion limited by the Differences we shall presently subjoin; after giving a few Cautions for the avoiding of Ambiguity.

Heat relative to Man. (5.) Heat to the Sense is a relative Thing, that regards Mankind, not the Universe; and is justly assigned only as the Effect of Heat upon the animal Spirit or Mind; being in itself an indeterminate Thing: for the same Body, according as the Sense is predisposed, may give the Preception as well of Heat as of Cold; as appears by the forty-first Instance of the Third TABLE.

Heating not of the Form of Heat. (6.) But the Communication, or transitive Nature of Heat, whereby one Body conceives Heat upon being applied to another that is hot, must not be confounded with the Form of Heat: for Heat is one Thing, and Heating another. Heat is produced by the Motion of Attrition, without any Heat preceding that Motion; whence Heating is excluded from the Form of Heat. And when Heat is produced by the Approach of a hot Body; this does not proceed from the Form of Heat; but depends entirely upon a higher and more common Nature;

^d See Tab. III. Instance 27.

^e Or universal Kind.

^f See above, Part II. Aph. 4.

ture⁸; viz. upon the Nature of Communication, Assimilation, or Self-multiplication; which demands a separate Enquiry.

(7.) The Notion of Fire is vulgar; and composed of Heat and Splendor, as existing in some one Thing: for Example, in common Flame, and Bodies ignited, or made red-hot. And having thus removed all Ambiguities; we at length come to the true Differences, which limitate Motion, so as to constitute it the Form of Heat^b.

I.

(8.) The first Difference is this; that Heat is an expansive Motion, whereby a Body endeavours to dilate itself, and stretch into a greater Sphere, or Dimension, than it before possessedⁱ. And this Difference appears principally in Flame, where the Smoak, or unctuous Vapour, manifestly dilates and opens itself into Flame. It appears likewise in all boiling Liquors; which manifestly swell, rise up, bubble, and carry on their Process of Expansion, till they change into a much more rarified Body, than the Liquors themselves; as for Example, into Vapour, Flame or Air.

(9.) It appears likewise in Wood, and all combustible Bodies, which sometimes sweat; but always evaporate.

(10.) It appears again, in the melting of Metals, which being of a very compact Substance, do not easily swell and dilate; yet their Spirit^k, after being itself dilated, and endeavouring at a still greater Extension, forces and agitates the more gross Parts into a fluid State: and if the Heat be greatly increased, it resolves, volatilizes, and drives off much of their Substance.

(11.) It appears also in Iron and Stone; which at least are soften'd, if not liquified and fused by Fire. So likewise Rods of Wood become flexible, by being somewhat heated in hot Ashes.

(12.) But

ⁱ This is a subtle and curious Distinction. The Meaning appears to be, that, when Heat is once produced by the Existence of its Form, that is, by a particular Motion; it propagates itself, not by means of its Form, but by the Principle of Assimilation, or Self-Multiplication. See Sir Isaac Newton upon the Heat of the Comets. Princip. Lib. III. p. 467, &c.

^k See Part II. App. 4.

^l Observe, that this does not contradict, but coincide with the tenth and eleventh Instances of the Fourth Table; tho' the correspondence may not, perhaps, appear at first Sight. For farther Confirmation, see below, §. (15.) (19.) (26.)

^m See the Sylva Sylvarum, p. 48, 49, 50.

(12.) *But this Motion is best perceived in Air; which continually and manifestly dilates itself, with a small Heat; according to the thirty-eighth Instance of the Third TABLE¹.*

(13.) *Again, it appears from the contrary Nature of Cold: for Cold contracts all Bodies, and makes them shrink; insomuch that Nails have dropt out of Walls, and brass Vessels have crack'd, through Cold. So likewise Glass heated, and suddenly brought into the Cold, cracks and flies to pieces. Air contracts itself even upon lightly cooling; as appears by the thirty-eighth Instance of the Third TABLE^m. But the full Consideration of these Particulars belongs to the Enquiry of Cold.*

(14.) *And it is no Wonder that Cold and Heat should perform many Actions in common; according to the thirty-second Instance of the second Table; because two of the Differences, which we shall presently mention, belong to both Naturesⁿ: tho' in the present Difference, their Actions are diametrically opposite; for Heat gives an expansive, and Cold a contractive Motion.*

II.

The second
Difference.

(15.) *The second Difference is a Modification of the former; and depends upon this, that Heat is an expansive Motion, or a Motion towards the Circumference; but with this Law, that at the same Time it rises upwards. And we cannot doubt but there are many mixt Motions; as that of an Arrow, for Example, which revolves in going forwards, and advances by revolving. And, in like manner, the Motion of Heat is, at the same Time, both expansive and upwards.*

(16.) *This Difference is perceived by beating one End of an Iron Rod, held perpendicularly in the Fire; in which Posture it will burn the*

¹ Neither does this contradict the eleventh Instance of the fourth Table. The assigning of these Differences is a particular Work of the Understanding, employ'd solely in adjusting and reconciling the Instances of the preceding Tables, without Distraction or Avocation.

^m It should here be remember'd, that Water expands in Freezing: for Ice is specifically heavier than the Water that affords it. How this happens, the Author explains in the *History of Condensation and Rarification*, p. 551. But, perhaps, if the Water be very well purged of its Air, before it is froze, the Ice will not be lighter than Water. See *Boerhaave's Chemistry*, under the Chapters of Fire and Water. See also Mr. *Hawkesbee's Physico-Mechanical Experiments*, p. 257.

ⁿ See below, §. (25.) (26.) (29.)

the Hand much sooner at the other End, than if it were held aslope, or downwards.

(17.) This Difference also appears from Distillation per descensum, or the Method of Distilling downwards; (which is practised upon curious Flowers, whose Odour is easily lost;) viz. by applying the Fire not below, but above the Subject; that it may scorch the less: for not only Flame, but all Heat tends upwards.

(18.) Let Trial be made of this in the contrary Nature, that of Cold; to find whether Cold will not contract Bodies by moving downwards; as Heat dilates them, by rising upwards. Take, therefore, two Iron Rods, or two Glass Tubes, exactly alike; heat them a little, and place a Sponge full of Water, or a Quantity of Snow, under the one; and in like manner over the other: for we conceive that Rod, or Tube, will cool faster at the farther End, where the Snow lies at the Top, than where it lies at the Bottom: contrary to what happens in Heat °.

III.

(19.) A third Difference is this; that Heat is not an expansive, The third Difference. uniform Motion, in respect of the Whole ^p; but Expansive in the lesser Particles of a Body: and at the same time check'd, repell'd and reverberated; so as to become an alternative, perpetually shuddering, or struggling Motion, or Action; which is irritated by the Reaction of the Body ^q: whence proceeds the Violence of Fire and Heat.

(20.) And this Difference appears chiefly in Flame, and boiling Liquors; which continually tremble, swell in their small Particles, and again subside.

(21.) It appears also in such Bodies as are of too hard a Texture, to swell, or increase remarkably in Bulk, when heated or ignited; as red-hot Iron, in which the Heat is very intense ^r.

(22.) It also appears from hence, that Fire burns sharpest in the coldest Weather.

(23.) Again,

° See the Experiments of the *Academie del Cimento* at the End; and Mr. Boyle's *History of Cold*.

^p As when a Bladder is distended by blowing into it.

^q As when a Nail is driven up to the Head in a Board, and made to shudder and vibrate in its small Parts, by the Stroke of the Hammer.

^r It should seem as if this shuddering Action were visible in Iron; even tho' heated below the Degree of Ignition: for in looking upon such heated Iron, the Eye receives an odd Impression, of a particular Kind of Waving, or recurrent Motion.

(23.) Again, it appears from this, that when the Air stretches uniformly and equably in a Weather-Glass, there is no sensible Heat perceived. And even confined Winds, tho' they blow and move violently, yet produce no remarkable Heat; because the Motion is the Motion of the Whole; without an alternative or shuddering Motion in the Particles. And to this Purpose, let Trial be made whether Flame does not burn sharper, on the Surface than in the Middle^s.

(24.) Lastly; it appears from this, that all Burning passes through the minute Pores of the Body burnt; so that the Burning undermines, saps, penetrates, and enters, like the Points of an infinite Number of Needles. And hence it is that all acid Spirits, if suited to the Body they act upon, have the Effect of Fire, from their dissolving, or corroding Nature^t.

(25.) And this Difference we now speak of, is common to the Nature of Cold, wherein the contractive Motion is restrained by the contrary Endeavour of Expansion; as the expansive Motion is checkt in Heat, by the opposite Endeavour of Contraction. And therefore, whether the Parts of a Body penetrate from without inwards, or from within outwards, the Case is similar; tho' the Force be very unequal: because we have no Body here upon the Surface of the Earth, that is intensely Cold^u.

IV.

The fourth
Difference.

(26.) The fourth Difference is a Modification of the last, and depends upon this, that the preceding Motion of Stimulation or Penetration be somewhat rapid, or no way sluggish; and also play among such Particles as tho' minute, yet are not extremely fine, but as it were of a moderate Size^w.

(27.) This

^s This is easily tried in a common Candle; where if a Piece of Packthread, or a Splinter of Wood, be thrust into the Centre of the Flame, the Point will remain for a while unburnt; whilst the outermost Part, in Contact both with the Flame and Air, readily takes Fire, and burns away. Hence Flame appears to be a kind of Film, or conical Surface, whose Inside is fill'd with the Smoak of the Fewel. Let the common Instances be here remember'd, of Sealing-Wax, &c. smoked by being held too far in the Flame of the Candle. See Dr. Hook's *Lectures of Light*; and Boerhaave's *Chemistry*, under the Chapter of Fire.

^t See Dr. Hook's *Lectures of Light*; and *Micrographia*, passim.

^u See Tab. I. Instance 27.

^w Observe how the Author, according to his own Rule, proceeds to limit the particular Motion, which, as a true Genus, is to constitute the Form of Heat. See above, Aph. 4.

(27.) *This Difference appears upon comparing the Effects of Fire, and the Effects of Time, or Age, which withers, consumes, undermines, and reduces Bodies to Ashes, as well as Fire; or rather much more subtilly: but because this kind of Motion is exceeding slow, and exercised upon very fine Particles, the Heat is not perceived.*

(28.) *It again appears, upon comparing the Dissolutions of Iron and Gold: for Gold dissolves without causing a manifest Heat; but Iron excites a strong one; tho' it scarce dissolves quicker than Gold: because in Gold the Menstruum not only enters milder, and more subtilly, but the Parts of the Gold also prove more yielding; whereas in Iron, the Entrance of the Menstruum is violent, and attended with a Conflict; the Parts of the Iron making a much greater Resistance^x.*

(29.) *Lastly; it appears also, in some Measure, from such Gangrenes and Mortifications of the Flesh, as cause no great Heat or Pain, by reason of the Subtilty of the Putrefaction^y. And let this serve for what we call the first Vintage, or an Attempt towards interpreting the Form of Heat; which the Understanding makes, as we said, by the Way of Permission^z.*

(29.) *The Fruit of this first Vintage, is, in short, the following true Definition, or Form of Heat, as it regards the Universe; and not as it is only relative to the human Sense: viz. HEAT IS AN EXPANSIVE, BRIDLED MOTION, STRUGGLING IN THE SMALL PARTICLES OF BODIES. But this Expansion is modified; so that whilst it spreads in Circumference, it has a greater Tendency upwards. 'Tis also modified alternately, or by Fits; so as to prove no way sluggish; but vigorous and active^a.*

(31.) *And as to Practice, the Case is exactly correspondent, and amounts to this; that if in any natural Body a Motion can be ex-*

The theoretical Fruit.

The practical Fruit.

^x See the History of Condensation and Rarification, p. 544, 545, 546.

^y And these kind of Gangrenes or Mortifications may happen by Cold, or by Freezing. See Mr. Boyle's History of Cold, passim.

^z See above, Aph. 36. The Meaning is, that as Men are apt to grow weary of prosecuting Enquiries, where they reap no quick Advantage, or receive no immediate Fruits of their Labours; the Understanding is permitted to gratify itself, by a kind of Anticipation; or by making some Offer and first Attempts at discovering the Forms of Things: but till the Enquiry is duly prosecuted, Men have no Right to pronounce, or even to expect, that the Forms of Things can be perfectly discover'd.

^a Here we have an Instance of a genuine, or scientific Definition; which is no other than the Form or Nature of the Thing defined: So that true Definitions are the Results of Enquiries duly prosecuted; and not those slight arbitrary Notions usually call'd by the Name of Definitions.

cited, which shall dilate or expand, and again recoil, or turn back upon itself; so as that the Dilation shall not proceed equably; but partly prevail, and partly be check'd; any Man may doubtless produce Heat: *without at all regarding whether the Body that is wrought upon be elementary, as they call it, or earthly; or whether it be enriched with a celestial Influence; whether it be luminous or opaque; rare or dense; locally expanded, or contain'd within its original Dimensions; whether it tend to Dissolution, or remain in its native State; whether it be animal, vegetable, or mineral; whether it be Water, Oil, Air, or any other Substance, that is susceptible of the foresaid Motion^b. And Heat, in respect of the Sense, is the same Thing; only with such Relations as belong to Sense. And this may serve as an Example of our Method of Investigating Forms^c.*

^b Hence we are furnished with a farther Criterion, or Argument, *à posteriori*, that will shew in Fact, whether the *Form* be justly discover'd. Thus if we can produce Heat in all Bodies susceptible thereof, by introducing into them the *Motion* here described; we shall have a Confirmation that this *Motion* is the *Form of Heat*. And the only Exception in Practice is, perhaps, *Water*; for introducing Heat into which, by the Means of this particular Motion, a well adapted, mechanical Contrivance, seems hitherto wanting; tho' possibly it might with Ease be supplied.

^c Tho' this Method is here so fully deliver'd, and promises better Things than possibly any other Method of Enquiry hitherto known; yet it appears to be strangely disregarded. And, certainly, it should seem as if very few were apprized that this Method, thoroughly pursued, is an *actual Demonstration*, as justly and properly suited to *Physics*, or indeed to all *Philosophy*; as Mathematical Demonstration, and Algebra, are to *Geometry*, and general *Mathematics*.

S E C T.

S E C T. II.

*The DOCTRINE of INSTANCES:
or, the Method of Expediting the IN-
TERPRETATION of NATURE,
and the INVESTIGATION of FORMS,
by PREROGATIVE INSTANCES^a.*

APHORISM XXI.

1. **H**AVING thus laid down the *Tables*, that afford the first View of *Transition to a Subject^b*, and given an Example of the *Method of Rejection, the Doctrine of Exclusion*; and a Specimen of the *Fruits, or first Dawn of Doctrine to of Instances*, be derived from them; we proceed to the other *Helps of the Understanding*, in the Business of *Interpreting Nature*; or forming a true and perfect *Induction*. And, in proposing these Helps, we shall, where-ever *Tables* are required, proceed upon the foregoing Subject of *Heat^c*; but where fewer Examples are sufficient, we will occasionally launch into Subjects

^a The Doctrine of *Instances* is deliver'd with great Diligence, Sagacity, and Exactness, in the present Section. The Design is to shew what are the principal, most material, and essential Particulars in every Enquiry; or what *Instances* are chiefly to be sought after and regarded, in order to discover the real *Natures of Things*, with the greatest Certainty and Expedition. It is a Doctrine of the first Importance in the Discovery of *Forms*; and for want thereof the Philosophical Enquiries we generally meet with, are but light Skirmishes, instead of close Grapplings with Nature: or, without a Metaphor, they have no strong and direct Tendency to the Discovery of *Forms*; but appear vague, indetermined, and rather amusing than useful.

^b That is, in the way of Example; and not in the way of a rigid and just Enquiry; which requires much more Industry and Exactness; after the manner of the Author's Enquiry into the Subjects of *Life and Death, Winds, Condensation and Rarification*: tho' these also are but a kind of larger Examples; and not finished Enquiries.

^c The *Tables*, for that purpose, being laid down in the preceding Section.

The Division
of the remain-
ing Parts of
the Novum
Organum.

of all Kinds; without confounding our Enquiry of *Heat*, on the one hand; or confining our *Doctrine* to too scanty Bounds, on the other^d.

2. We therefore propose to treat, (1.) of *Prerogative Instances*; (2.) of *the Helps of Induction*; (3.) of *the Rectification of Induction*; (4.) of *the Method of varying Enquiries*, according to the Nature of the Subject; (5.) of *Prerogative Natures for Enquiry*; or, what Subjects are to be enquired into first, what second; (6.) of *the Limits of Enquiry*; or, an *Inventory of all the Natures in the Universe*; (7.) of *reducing Enquiries to Practice*; or, making them subservient to human Uses; (8.) of *the Preliminaries to Enquiry*; (9.) and lastly, of the *ascending and descending Scale of Axioms*^e.

APHORISM XXII.

(1.) Solitary
Instances,
what.

3. Among the *Prerogative Instances for interpreting Nature*, in the first place come the *solitary Kind*^f; that is, (1.) those which exhibit the Nature enquired after, in such Subjects as have nothing common with others, besides that very Nature; or, (2.) those that exhibit the Nature enquired after, in such Subjects as are every way similar to others, excepting in that very Nature. For it is manifest, that such *Instances* as these will shorten the Enquiry; and promote and hasten the *Exclusion*^g: so that a few of them may do the Service of many^h.

Their Use.

Exemplified
in the Subject
of Colours.

4. For Example; (1.) if the Enquiry be about the *Nature of Colour*; *solitary Instances* are *Prisms*, and *Crystal Gems*, or *Glasses*, which represent Colours, not only in themselves, but also externally upon a Wall, &c. Understand the same of *Dews*, &c. For these have nothing in common with the *fixed Colours* of Flowers, coloured Gems, coloured Glass, Metals, various Woods, &c. besides the *Colour* it self. Whence it may be easily inferr'd, that Colour is nothing more than an Alteration in the Rays of Light, occasioned, in the

^d And, in this View, the following *Aphorisms* will exhibit a little Map of the Roads for improving all kinds of Knowledge.

^e Of these nine *General Heads*, under which the remaining Parts of the *Novum Organum* were to have been comprized, no more than the first is prosecuted by the Author. Nor was any thing afterwards published towards executing the rest; tho' it appears that the whole Design was laid from the first; and that, at Times, the other Parts were gone on with, after the present Piece was published. See *Vol. I. p. 504, 507, 509.* See also *Vol. III. p. 5.* and hereafter, *Aph. 52. ad finem.* The want of these additional *Sections* may, perhaps, be in some measure supplied by a close Attention to the present *Doctrine of Instances*: where many of the Particulars are transiently touch'd upon; as they also frequently are in several Parts of the *first and third Volumes* of our Edition. But, in order to render the Whole more generally intelligible and useful, it were greatly to be wished, that some tolerably qualified Person, would give an *Essay* upon it, in as familiar a manner as the Subject will allow. See *Dr. Hook's Method of Improving Natural Philosophy.*

^f Let it be remember'd that, with regard to the *Names* of the several kinds of *Instances* hereafter mention'd, the Author had a Right to impose them; as the Subject was entirely new, and untouched. And, doubtless, certain Definitions, and Names, are required, where Things are to be carefully distinguished.

^g See above, *Table IV. Aph. 18.*

^h See above, §. 1. the *Note*^a.

the *first* Case, by different Degrees of Incidence^a; and in the *second*, by the different Texture, or Structure of the Body; and so reflected to the Eye. But these Instances are *solitary*, or single, in Point of *Likeness*ⁱ.

5. (2.) Again, in the same Enquiry, the distinct Veins of Black and White in Marble, and the Variegation of Colours in Flowers of the same Species, are *solitary Instances*: for the black and white Parts of Marble, or the Spots of White and Purple in Carnations, agree almost in every respect, except in Colour. Whence it is easily collected, that Colour does not greatly depend upon the intrinsic Nature of the coloured Body; but is owing to a somewhat gross, or bare mechanical Texture of the Parts^k. Thus these Instances are *solitary*, in Point of Difference. And we call both the Kinds by one and the same Name.

APHORISM XXIII.

6. In the second Place come *Travelling Instances*, or those wherein (2.) *Travelling* the Nature enquired after, travels, or advances to Generation, when it *Instances* was not before in Being; or, on the contrary, travels, or tends to Destruction, when it was in Being before. And, therefore, in either Corro- lative, such Instances are always duplicate; or rather one Instance, in Motion, or Passage, is continued to the opposite Period^l. And Instances of this *Their Use*, Kind, not only accelerate and confirm the Business of Exclusion; but also drive the *Affirmation*, or *Form* itself, into a narrow Compass. For the *Form* of the Thing, must necessarily be somewhat introduced, or abolished, by this Transmigration^m. And tho' all *Exclusion* promotes and forwards the *Affirmation*; yet this is more directly done in the same Subject, than in different ones: for it plainly appears, from all we have said before, that the *Form* discovering itself in one Thing, leads to its Discovery in all the rest. But the more simple this Passage is, the nobler the Instance should be esteemed.

7. Again, these *Travelling Instances* are of great Use in Practice; be- *Lead to Pra-* cause, as they exhibit the *Form* joined with an *Efficient*, or *Privation*ⁿ; *also*. they clearly design, or mark out the practical Operation in some Cases: whence any easy Passage is also afforded to the neighbouring Discoveries. There is, however, some Danger in these Instances, that requires a particular Caution: for they may be apt to restrain the *Form* too much to the

^a Viz. In the Prism, Glasses, Dew, &c. Which kind of *Instance* led the Archbishop of Spalato, Dr. Hook, Mr. Boyle, Sir Isaac Newton, &c. to very considerable Discoveries, in the Subject of Colours.

ⁱ Viz. Dissimilar in all respects, besides that of Colour; in which the *Solitariness* of the *Instance* consists.

^k See Mr. Boyle of Colours.

^l That is, either there is both a *Generation* and *Destruction*; or else one and the same Process begins with *Generation*, and ends with *Destruction*.

^m See below, §. 8.

ⁿ See above, Part II. Sect. I. Aph. 1, 4, &c.

the *Efficient* ; and to infect, or at least to tinge the Understanding with a false Notion of the *Form*, through an apparent Mixture of the *Efficient* ; whereas the *Efficient* is never more than the Vehicle of the *Form*^o. But this Inconvenience is easily remedied by making a just *Exclusion*^p.

*Exemplified in
the Subject of
Transparency.
and Whiteness.*

8. To give an Example of a *Travelling Instance* ; suppose the Nature enquired after were *Whiteness*, an *Instance advancing to Generation*^q is Glass, whole, and in powder ; and again, simple Water, and Water beat into Froth : for whole Glass, and simple Water, are transparent Bodies, not white ; but powdered Glass, and the Froth of Water, are white, not transparent. It comes therefore to be enquired, what has happened to the Glass, or Water, in this Transmigration^r ; for, 'tis manifest, that the *Form* of *Whiteness* travels, or is convey'd over by pounding the Glass, and agitating the Water : But nothing is here found added, besides a bare Comminution of the Parts of the Glass, and the Water ; together with the Interposition of the Air. And it is no small Acquisition in discovering the *Form* of *Whiteness*, that two Bodies, of themselves more or less transparent ; viz. Air and Water, or Air and Glass ; being mixed together, in subtile or small Parts, should exhibit *Whiteness*, by differently reflecting the Rays of Light^s.

*The Caution
required in
them.*

9. We must also give an Example of the *Danger*, and *Caution*, above-mentioned^t ; for it may here readily occur to the Understanding, deprived by these Kinds of *Efficients*^u, that Air is always necessary to the *Form* of *Whiteness* ; or that *Whiteness* is generated only by transparent Bodies : which two Positions are absolutely false ; and rejected by numerous *Exclusions*^v. It will rather appear, without the Interposition of the Air, &c. that the Bodies perfectly uniform, or similar, in their optical Parts, prove transparent ; that those which have the simple Texture, or Arrangement of their Parts disturbed, are White ; that a Dissimilarity in the regular Texture of Bodies, affords all Colours, except Black ; and that a Dissimilarity in a compound, absolutely irregular, and confused Texture, constitutes Blackness^w. And, for an *Instance advancing to Destruction* in the same Nature of *Whiteness*, we have it in Froth subsided, or Snow dissolved ; for
Water

^o See Part II. Sect. I. Aph. 2, &c.

^p See Table IV. Aph. 18.

^q Viz. The Generation of Whiteness. See above, §. 6. and below, §. 9.

^r Viz. From Transparency to Whiteness.

^s See Mr. Boyle's *History of Colours*, Dr. Hook's *Lectures of Light*, and Sir Isaac Newton's *Opticks*, passim.

^t §. 7.

^u Such as the Pounding of Glass, the Agitating of Water, &c. upon which the Transparency ensues.

^v According to the Procedure of Table IV. Aph. 18. thus Ceruse is made of Lead ; an opaque pulpy Mass makes white Paper, &c. white Minerals are found in the Earth ; white Enamels are made in the Fire, &c. See Vol. I. p. 84.

^w Perhaps these Intimations carry the Enquiry into the Causes of Colours, on the Side of the colour'd Body, farther than has been generally follow'd. See Mr. Boyle of Colours, and Sir Isaac Newton's *Optics*.

Water deposites its Whiteness, and puts on Transparency, upon becoming entire, without any Intermixture of Air.

10. We must by no means omit, that under *Travelling Instances* *Their Degrees* should be comprehended, not only those which travel to absolute *Generation* and *Privation*; but such likewise as travel to a greater or less Degree of the Nature sought: since these also tend to the Discovery of the *Form*; as plainly appears both from the *Definition of a Form*, above laid down^a, and the *Table of Comparison*^b. And therefore the Instance of Paper, which is white, when dry, but proves less white, when wet; and comes nearer to the State of Transparency, upon the Exclusion of the Air, and the Reception of the Water; is of the same Use, as the *Instances* above-mentioned^c.

APHORISM XXIV.

11. Among *Prerogative Instances*, come in the third Place the (3.) *Glaring Kind*, mentioned in our *first Dawn of Doctrine* from the *Form of Instances*. *Heat*^c; which we also call by the Name of *shining, released, or predominating Instances*. And these are such as shew the Nature searched after, naked, and standing alone; and this in an eminent manner, or in the highest Degree of its Power; as being disenthralled, and freed from all Impediments; or at least, by the Strength of its own Virtue, over-ruling, conquering and subduing them. For as every Body may receive many united and concrete *Forms* of Natures, it happens that one may repel, depress, break and bind down another; whence all particular *Forms* are obscured. But there are certain Subjects, wherein the Nature sought after, appears more in its Vigour, than in others; either through the Absence of Impediments, or the Predominancy of its own Virtue. And Instances of this Kind are what principally shew the *Form*. But in these also, Caution must be used, and the *Alertness* of the Understanding be repress'd: for whatever boasts the *Form*, and obtrudes it, so as that it seems to meet the Understanding, should be held suspect^d; and Recourse be had to a careful and severe *Exclusion*^e.

12. For Example, if the Nature enquired after be *Heat*; then the Weather-glass is a *Glaring Instance* of the Expansive Motion, which is, as we said above, a principal Part of the *Form of Heat*. For Flame, tho^f

^a See above, *Aph. 4.*

^b See above, *Aph. 13.*

^c *Viz.* The Whiteness and Transparency of *Glass, Water, &c.* this latter being a Kind of intermediate *Instance*, betwixt the former.

^d See above, *Aph. 20. (2.)*

^e As being very apt to deceive; for Men have Reason to be assured, that the *Forms* of Things are not easy to find. And let it be duly weigh'd and consider'd, how many certain *Instances* there are of a true and perfect Discovery of *Forms*.

^f See above, *Table IV. Aph. 98.*

^g See *Aph. 12. (37.) 20. ad finem.* See *Table I, II, III, IV, and V.*

tho' it manifestly shews an Expansion; yet, by reason of its momentary Extinction, it does not exhibit the Progress thereof. Again; boiling Water, because of the easy Transition of the Water into Vapour and Air, does not so well shew the Expansion of the Water, in its own Body. Again; Ignited Iron, and the like Bodies, are so far from shewing the Progress, that on the contrary, the Expansion itself is not visible to the Sense, by reason of the re-action and breaking of the Spirit in the compact and gross Parts^c: but the Weather-glass clearly and evidently shews a true progressive, and durable Expansion of the Air by Heat^b.

And Gravity. 13. For a second Example; let the Nature enquired after be Gravity; and then Quicksilver will prove a *Glaring Instance*; as having a far greater specific Gravity, than any thing else, except Gold, which however is not much heavierⁱ: but Quicksilver is a better *Instance* for disclosing the *Form* of Gravity, than Gold; because Gold being a solid and consistent Body, its superior Gravity may seem owing to its Solidity: whereas Quicksilver is fluid, and full of Spirit, and yet proves much heavier than Diamond, or any other of those Bodies that are esteemed the most solid. Whence it appears that the *Form* of Gravity, or Weight, resides simply in the Quantity of Matter; and not in Solidity, Firmness or Hardness of Texture.

APHORISM XXV.

(4.) *Clandestine Instances.* 14. In the fourth Place come those we call *Clandestine Instances*, or *Instances of Twilight*; which are, in a manner, opposite to *Glaring Instances*; as shewing the Nature enquired after in its weakest Virtue and imperfect State, or Rudiments, striving, or as it were, first attempting to manifest itself; whilst it remains cover'd and subdu'd, or kept under by a contrary Nature. And these Instances are of extraordinary Service in the Discovery of Forms: because, as the *Glaring Instances* easily lead to *Differences*; so the *Clandestine Instances* easily lead to *Kinds*; that is, to those common Natures of which the Natures enquired into are no other than *Limitations*^k.

Exemplified in Consistence or Solidity. 15. For Example; let the Nature enquir'd into be *Consistence*, or *Solidity*, the contrary of which is *Liquidity* or *Fluidity*; then *Clandestine Instances* are such as exhibit some faint and low Degree of Consistency in a Fluid; suppose a Bubble of Water, which is a kind of consistent, and determinate Pellicule, made of the Body of the Water. In like manner *Isicles*, if there be Water to follow them, lengthen themselves out in a very slender Thread, to prevent a Discontinuity of the Water;

^c All the five preceding Tables, are to be consulted on this Occasion.

^b See above, Table II, III. (37.)

ⁱ See the Table of the specific Gravities of Bodies, Vol. III. p. 512, 513.

^k See above, Part II. Aph. 4. Whence it will evidently appear of what great Use these Instances are.

Water; but if there be not a sufficient Quantity to follow, the Water then falls in round Drops; which is the Figure that best supports it against Discontinuation: and at the very Instant when the Thread of Water ends, and the falling in Drops begins, the Water recoils upwards, to avoid being discontinued. So in Metals, which are fluid upon Fusion, tho' a little tenacious, some of the melted Mass frequently springs up in Drops; and sticks, in that Form, to the sides of the Crucible. There is a like *Instance* in the Looking-Glasses, commonly made of Spittle by Children, in a Loop of Rush or Whalebone; where we find a consistent Pellicule of Water. But this is observed to much better Advantage in that other Diversion of Children, when they take strong soapy Water, and blow in it with a Pipe, so as to raise the Water into a Tower, or Castle of Bubbles; whilst, by the Interposition of the Air, the soapy Water becomes consistent to that Degree, as to be thrown a considerable Distance without breaking. This also appears to Advantage in Froth and Snow, which put on such a Consistency, that they may almost be cut with a Knife; tho' they are but Bodies form'd of Air and Water, both of them fluid. These several Instances seem clearly to intimate that *Fluidity* and *Consistency* are no more than vulgar Notions, relative to the human Sense; and that all Bodies have a real Appetite to avoid Discontinuation: tho' in homogeneous Bodies, such as Fluids are, it is but weak and feeble; whilst in those compounded of heterogeneous Matters, it proves more strong and powerful: because the Application of what is heterogeneous, binds Bodies up; but the Entrance of what is homogeneous, relaxes and dissolves them¹.

Drops of Metal.

Tenacious Fluids.

Soapy Water.

Froth and Snow.

Again exemplified in the Subject of Attraction.

In the Loadstone.

In Wood-Arrows discharged from a Gun.

16. As a farther Example; if the Nature sought were *Attraction*, or the *Appetite of Approach in Bodies*; a most remarkable *Glaring Instance*, as to the Discovery of the *Form*, is the Loadstone. The contrary of an attractive Nature, is an unattractive Nature, tho' in a similar Substance; as in Iron, which does not attract Iron; nor does Lead attract Lead, nor Wood attract Wood, nor Water attract Water. But the Loadstone arm'd with Iron, or rather the Iron of an arm'd Loadstone, is a *Clandestine Instance*: for here it happens, that an arm'd Loadstone does not, at a certain Distance, attract Iron stronger than an unarm'd Loadstone: But if the Iron be moved so near as to touch the Iron of the arm'd Loadstone; then the arm'd Loadstone will support a much greater Weight of Iron, than the naked and unarm'd Loadstone; by reason of the similitude of Substance betwixt Iron and Iron: which Operation was altogether *Clandestine*, and secret, or concealed in the Iron, before the Loadstone was applied. Whence it is manifest, that the *Form* of Attraction, is a Thing that is vivid and strong in the Loadstone; but weak and latent in Iron.

17. After the same manner, it is observed, that headless Arrows of Wood, being fired out of a Gun, will penetrate farther into Wood, or

¹ Consider the Instances derivable from Chemistry, and the Doctrine of *Menstruums*.

the sides of a Ship, than the same Arrows headed, or pointed with Iron; by reason of the Similitude of Substance betwixt Wood and Wood^m; tho' this before lay conceal'd in the Wood.

*In Air, and
in Water.*

18. Again; tho' Air does not manifestly attract Air, nor Water manifestly attract Water, in a State of Entireness; yet one Bubble approaching another, makes it easier dissolve, than if the other Bubble were away; by reason of the Appetite of Conjunction between Water and Water, and between Air and Air.

*Most observable
in the small
Parts of Bodies.*

19. And this kind of *Clandestine Instances*, which, as we before observed, have a noble Use, are most remarkable in the small and subtile Parts of Bodies; because the greater Masses of Things follow the more general and universal *Forms*ⁿ.

APHORISM XXVI.

*(5.) Constituent
Instances,
what.*

20. In the *fifth* Place, come *Constituent* or *Collective Instances*; that is, such as constitute one *Species* of a Nature enquired after, in the way of a *lesser Form*. For, as genuine *Forms*, which are always convertible with the Natures sought^o, lie deep, and are not easily found; the Design itself, and the Weakness of the Understanding, require that partial *Forms*, which are *collective* of certain Packets of Instances, (tho' by no means of all) into some common Notion, shou'd not be neglected; but carefully observ'd: for whatever collects and unites Natures, tho' it be but imperfectly, paves the Way to the Discovery of *Forms*. And, therefore, those *Instances* which are useful to this Purpose, have a considerable Power, and a prerogative Nature.

*The Caution
they require.*

21. But great Caution must here be employ'd, lest the Understanding, after having found many of these particular or partial *Forms*; and hence made Arrangements or Divisions of the Nature sought after; should wholly rest in them; and not apply itself to the legitimate Discovery of the *great Form*; but presuppose Nature to be manifold and divided, as it were in the Root; and therefore disdain and reject all farther uniting of her, as a Matter of needless Subtlety, and tending to mere abstract Speculation.

*Exemplified in
the Subject of
artificial Memory.*

22. For Example, let the Nature sought be *Memory*, or the *Means of Exciting and Helping the Memory*; the *Constituent Instances* will here be, first, *Order*, or *Distribution*, and *Places* for Artificial Memory. *Order*, or *Distribution*, manifestly assists the Memory; and *Places* for Artificial Memory, may either be *Places* in a proper Sense, as a Door, a Window, a Corner, &c. or familiar and known Persons; or any other Things at Pleasure; provided they be placed in a certain Order; as Animals,

^m Is the *Fact* certain? See the *Sylva Sylvarum*, p. 37.

ⁿ We have here a remarkable Opening into the Doctrine of Attraction. See Sir Isaac Newton's *Principia*, and *Optics*, passim.

^o See Part II. App. 4.

mals, Plants, Words, Letters, Characters, historical Personages, &c. tho' some of these are more, and some less fit for the Purpose. But such Kind of Places greatly help the Memory, and raise it far above its natural Powers. Again; Verse is easier learnt and remembered than Prose^p.

23. And this *Collection*, or *Packet*, of the three abovementioned *Instances*, By *Order*, viz. *Order*, *Artificial Place*, and *Verse*, constitute one Species of Help for *Places*, and the Memory: and this Species of Help may be justly call'd the *Pre-Verse*. *vention of endless Search*. For when a Person endeavours to recollect, or call a Thing to mind; if he has no previous Notion or Perception of what he is in quest of, he casts about, and tries every Track, as it were without End: but if he has any previous Notion, this Infinity of Search is presently cut short; and the Memory is brought to hunt nearer home. But in the three *Instances* abovementioned, there is a clear and certain previous Notion contained. For in the *first*, there is required somewhat agreeable to *Order*; in the *second*, an Image is required, that has some Agreement, or Relation, to those *fixed Places*; in the *third*, Words that will stand in a *Verse*: so that Infinity is thus cut off or prevented; and the Search limited and restrained.

24. Other *Instances* will give this second *Species*; that whatever *Striking the* brings an intellectual Thing to strike the Sense, (which is the Method *Sense*. principally used in *Artificial Memory*^q) helps the Remembrance.

25. Other *Instances* will give this third *Species*; that those Things *Moving the* which make an Impression by means of a strong Affection or Passion, as *Passions*. by causing Fear, Surprise, Blushing, Delight, &c. assist the Memory.

26. Other *Instances* will give this fourth *Species*; that those Things *When the* sink the deepest, and dwell the longest in the Memory, which are *Mind is un-* chiefly impress'd upon a clear Mind, that remains unprejudic'd, either *occupied*. before or after the Impression; as the Things that we learn in Childhood, or think of just before going to sleep; as likewise all the first Times that Things are taken notice of.

27. Other *Instances* will give this fifth *Species*; that a Multitude *Holds for the* of Circumstances, or, as it were, Handles, or Holds to be taken, help *Mind*. the Memory: as the making of many Breaks in Writing, or Printing; Reading or Repeating aloud, &c.

28. Lastly; other *Instances* will give this sixth *Species of Help*; that those *Things ex-* Things which are expected, and raise the Attention, stick better, than *passed*. such as pass slightly over the Mind: whence, if a Man shou'd read a Writing twenty times over, he wou'd not remember it so well, as if he should read it but ten times, with trying between Whiles to repeat it; and consulting the Copy where his Memory fail'd.

^p See Vol. I. p. 135, 136.

^q See the *Art of Memory*, in the *de Augment. Scientiar.* Sect. XV.

*Lesser Forms
of Helps for
the Memory.*

29. Hence there are, as it were, six lesser *Forms of Helps for the Memory*; viz. (1.) the cutting off Infinity; (2.) reducing intellectual to sensible Things; (3.) Impression by a strong Passion; (4.) Impression upon a Mind free and disengaged; (5.) Variety of Handles, or Occasions; and, (6.) Expectation conceived.

*Exemplified in
the Subject of
Taste.*

30. In like manner, let the Nature sought be *Taste*, or *Tasting*; and the following *Instances* are *constituent*: viz. (1.) those who naturally want their Smell, do not perceive or distinguish by the Taste, such Meats as are musty or tainted; or again, such as are mixed with Garlic, Roses, and the like.

31. (2.) Those who have their Nostrils obstructed, by the accidental falling down of a Rheum, do not distinguish, or perceive Things that are putrefied, musty, or sprinkled with Rose-Water.

32. (3.) If those who are troubled with this kind of Rheum, hold any fetid or perfum'd Thing in their Mouth, and at the same time strongly blow their Nose, they immediately perceive the Stench or Perfume.

33. These Instances will afford, or constitute, this *Species*, or rather *Part* of the *Form* of Taste; viz. that the Sense of Tasting is, in some measure, no more than an internal Smell, passing and descending from the upper Cavities of the Nostrils, to the Mouth and Palate.

34. (4.) On the contrary; Saltness, Sweetness, Acrimony, Acidity, Roughness, Bitterness, &c. are all perceived, as well by such Persons as want their Smell, or have it obstructed, as by any others. Which shews that the Sense of Taste is a certain Composition of an internal Smell, and a kind of exquisite Touch^r: but this is no Place to prosecute the Subject.

*And the Com-
munication of
Qualities,
without a
Communica-
tion of Sub-
stance.*

35. Again, for Example, let the *Nature* sought be the *Communication of Quality without Commixture of Substance*. The Instance of Light will here afford, or constitute one Species of Communication; and Heat, and the Loadstone another: for the Communication of Light is, in a manner, momentary, and ceases immediately upon removing the original illuminating Body; but Heat and the magnetic Virtue, when communicated, or rather excited, in any Body, lodge and remain therein for a considerable Time after the first Cause is taken away.

*The Uses of
this kind of
Instance.*

36. Lastly; these *Constituent Instances* have a very high Prerogative; as being eminently serviceable in the forming of Definitions, especially the particular kind; and again, in the making of Divisions, or Distributions of Natures; with regard to which, *Plato* said well, *That he is to be held as a God, who knows perfectly how to Define and Divide*^a.

APHORISM

^r See the *Sylva Sylvarum*, p. 155, 180, &c.

^a This Use will appear evident, by recurring to the Beginning of the present *Aphorism*. And without frequently going back, and comparing one Part of these *Aphorisms* with another, it cannot be expected that their Doctrine and Use should be fully comprehended.

APHORISM XXVII.

37. The *sixth* Place may be assigned to those *Instances* which we call (6.) *Parallel, Parallel, Conformable, or Proportional Instances*; and sometimes *physical* or *Conformable* *Parallels* and *Similitudes*; that is, such as shew a *Similitude, Correspondence, and Relation* betwixt Things, not in the lesser *Forms*, like *Constituent Instances*¹, but entirely in the Concrete; and are therefore, as it were, *Instances* of the first and lowest Degree, for the uniting of Nature². Nor do they constitute any *Axiom* immediately from the Beginning; but only point out, indicate, or present certain Relations of Bodies. And altho' these *Instances* are of no great Use in the disclosing of *Forms*; yet they very advantageously lay open the Structure of the Parts of the Universe; or make a kind of Anatomy in the Members thereof: and therefore sometimes lead up to sublime and noble *Axioms*: especially such as belong to the Configuration of the World, rather than to simple *Natures* and *Forms*³.

38. For Example, *Parallel or Conformable Instances* are such as these; Exemplified in viz. a *Speculum* and the Eye; the Structure of the Ear, and of the cavernous Places that yield an Echo, &c. from which Conformity, besides the Observation of the *Similitude or Correspondence* (which is useful in many respects) it is easy to form and collect this *Axiom*; that the *Organs of the Senses, and the Bodies that procure Reflections to the Senses, are of a like Nature.* Reflections.

39. And again, the Understanding being thus admonish'd, easily rises to a still higher and more noble *Axiom*; viz. that there is no Difference between the *Consents, or Sympathies of Bodies endowed with Sense, and those of inanimate Bodies without Sense*; only that in the former an animal Spirit is added to the Body, so disposed; but is wanting in the latter: whence as many Conformities as there are among inanimate Bodies, so many Senses there might be in Animals; provided there were Organs, or Perforations in the animal Body, for the animal Spirit to act upon the Parts rightly disposed, as upon a proper Instrument⁴. The Axioms they may lead to.

40. And conversely, as many Senses as there are in Animals, so many Motions there may be in Bodies inanimate, where the animal Spirit is wanting: tho' there must, of necessity, be many more Motions in inanimate Bodies, than there are Senses in animate Bodies; because of the small Number of the Organs of Sense.

41. And

¹ See *Apb.* 26.

² Viz. For discovering the Similarity, Sameness, or Unity of Nature, in dissimilar Subjects. See above, *Part II. Apb.* 3.

³ This, and the like general Descriptions of *Instances*, will be usually intricate and abstruse of themselves, till the subsequent Exemplifications are read; which render the Whole plain and intelligible. Whence after reading the Examples, it may be proper to go over the general Description again, in order the better to take the Sense, and observe the Correspondence.

⁴ See *Vol. III. p.* 608.

41. And of this we have a manifest Example in Pains: for, as there are numerous Kinds of Pains, in Animals; and, as it were, different Characteristicks thereof; there being one Pain of Burning; another of Freezing; another of Pricking; another of Squeezing; another of Stretching, &c. 'tis certain that all these, with regard to the Motion, exist in Bodies inanimate, as they do in animate Bodies; for Example, in Wood, or Stone, when burnt, froze, pricked, cut, bent, bruised, &c. tho' there be no Sense attending them in these inanimate Bodies, for want of the animal Spirit^y.

Exemplified in
Plants.

42. Again; the Roots and Branches of Plants, tho' this may seem strange, are *Conformable Instances*: for every Vegetable swells, and thrusts out its Parts towards the Circumference, as well upwards as downwards: and the Difference betwixt the Roots and the Branches, is no more than this, that the Root is contained in the Earth; but the Branch exposed to the Air and Sun.

43. For if a young thriving Branch of a Tree be bent down into any Parcel of Earth, tho' it does not reach to the Ground, it will soon become a Root: and again; if Earth be laid on the Top of a Plant, and be so pressed down by a Stone, or other hard Substance, that the Plant cannot grow upwards; 'twill shoot out Branches downwards, into the Air^z.

Gums and
Gems.

44. The Gums of Trees, and most Gems of the Rock, are also *Conformable Instances*; both of them being no other than Exudations, and Percolations of Juices^a. For Gums are but the transfused Juices of Trees; and Gems the transfused Juices of Stones: whence the Clearness and Transparency of them both are procured, by means of a curious and exquisite Percolation. And hence it is, that the Hairs and Furs of Animals are not of such beautiful, and vivid Colours, as many Feathers of Birds; viz. because the Juices are not so subtilly strain'd thro' the direct Skins of Beasts, as thro' the Substance of the Quill in Birds.

The Scrotum
and Matrix.

45. The Scrotum also in Male Animals, and the Matrix in the Female, are *Conformable Instances*: so that the noble Structure which distinguishes the Sexes in Land Animals, seems to be nothing more than a Difference as to External and Internal; because, by a greater Force of Heat suppose, the genital Parts in the Male Sex are thrust outwards; whilst the Heat is too feeble in Females, to effect such an Extrusion; whence those Parts in them come to be contained within.

The moving
Limbs of Ani-
mals.

46. Among *Conformable Instances* also, come the Fins of Fish, the Feet of Quadrupeds, and the Feet and Wings of Fowl; to which Aristotle adds

^y See the *Sylva Sylvarum*, under the Article *Spirits*, &c.

^z See the Experiments upon *Vegetation*, in the *Philosophical Transactions*, French *Mmoires*, and the Author's *Sylva Sylvarum*.

^a See the Article *Percolation*, in the *Sylva Sylvarum*.

adds the four Wreaths of Serpents^b: So that in the Structure of the Universe, the Motion of living Creatures seems generally performed by quadruple Limbs, or Flexures.

47. Again; the Teeth in terrestrial Animals, and the Beaks in Birds, *Teeth and Beaks.* are *Conformable Instances*; which shew, that in all perfect Animals, a certain hard Substance flows to the Head^c.

48. It seems also no absurd Similitude, or Conformity, that Man *Men and Plants.* should resemble an inverted Plant; the Root of the Nerves and animal Faculties residing in the Head; and the seminal Parts being seated below; if we do not take in the Extremities of the Legs and Arms: but in a Plant, the Root, which answers to the Head in a Man, is regularly placed below, and the Seeds above^d.

49. But this Precept cannot be too frequently inculcated, that the Procedure and Method of Mankind in their Enquiries and Endeavours to collect a *Natural History*, must be entirely alter'd from the Method at present in Use: for Mens Curiosity and Diligence have been hitherto principally employ'd in observing the Variety of Things, and explaining the precise Differences of Animals, Vegetables and Fossils; the greatest Part of which Variety and Differences are rather the Sport of Nature, than Matters of any considerable and solid Use to the Sciences. Such Things, indeed, serve for Delight, and sometimes contribute to Practice; but afford little or no true Information, or thorough Insight into Nature: *human Industry, therefore, must be bent upon enquiring into, and observing the Similitudes and Analogies of Things, as well in their Wholes as in their Parts*; for these are what unite Nature^e, and begin to build up the Sciences. *The Manner of compiling a Natural History intimated.*

50. But here a severe and rigid Caution must be used, that those *Instances* only be received for *Conformable* and *Proportional*, which (as we all along require^f) denote real physical Likenesses and Resemblances; that is, such as are true, substantial, and actually lodged and seated in Nature; not such as are accidental and showy; much less such as are superstitious or vain; like those which the Writers of natural Magick, (a vain Sett of Men, that scarce deserve to be mentioned in the serious Subject we are now upon) every where boast of, in describing, and sometimes, with great Levity and Vanity, feigning empty Similitudes and Sympathies.

51. To

^b Are there but four Wreaths made in the progressive Motions of Snakes, Vipers, &c. &c. Consider also the Motion of Caterpillars, Worms, &c.

^c See the *Sylva Sylvarum*, under the Articles *Bones* and *Teeth*.

^d Animals likewise appear to resemble inverted Plants in another respect; viz. in having their Roots within; whilst Plants have them without; for the lacteal Veins in Animals nearly correspond with the Fibres of the Roots in Plants: so that Animals seem nourished from within themselves, as Plants are from without.

^e See above, Part II. Sect. I. App. 3.

^f See Part II. App. 1, 4, 5, 20, &c. See also hereafter, App. 33. ad finem.

Conformable
Instances in
the Configura-
tion of the
World.

51. To proceed ; *Conformable Instances* are not to be neglected in the Configuration of the World itself, with regard to its larger Parts. Thus *Africa*, and *Peru*, with the Continent up to the Streights of *Magellan* have similiar Isthmus's and similar Promontories: which does not happen without some Cause.

52. So again ; both the old World and the new, are wide and extended towards the North ; but narrow and pointed towards the South.

In Cold and
Heat.

53. But among the *noblest Instances of Conformity*, come the intense Cold in that called the Middle Region of the Air ; and the violent Fires often found to break out from subterranean Places : for these two Things are Extremes, and Limitations ; the one limiting the Nature of Cold, towards the Arch of the Heavens ; and the other limiting the Nature of Heat towards the Bowels of the Earth ; by *Antiperistasis*, or the *Rejection of a contrary Nature*.

In Axioms.

54. Lastly ; a *Conformity of Instances* deserves to be observed in the *Axioms* of the Sciences. So the Figure in *Rhetorick*, called *Inexpectation*, when a Matter comes in unexpectedly, is conformable to that Figure in *Music*, which is called *sinking of the Cadence*^a. So again ; the Mathematical Postulate, that *Things equal to the same third, are equal among themselves*, is conformable with the Structure of a Syllogism, in *Logick* ; which unites Things agreeing in a middle Term. To conclude ; a certain Sagacity in searching out and discovering physical Conformities and Similitudes, is a very useful Thing on many Occasions^b.

APHORISM XXVIII.

(7.) Hetero-
clite Instances.

55. In the *seventh Place* come those we term *Singular, Irregular* or *Heteroclite Instances* ; borrowing the Expression from the Grammarians ; that is, such as shew Bodies, in the Whole or Concrete, which seem to be out of Course ; or as if they were broken in Nature ; so as not to agree with other Things of the same Kind. For, *Conformable Instances* are like something else ; but *Heteroclite* or *Singular Instances* are only like themselves.

Their Use.]

56. The Use of these *Singular Instances* is the same as of *Clandestine Instances* ; viz. for raising and uniting Nature ; so as to discover Kinds, or common Natures, that are afterwards to be limited by real Differences^c. Nor should the Enquiry be dropt, or broke off, till the Properties and Qualities found in such Things as may be esteem'd Miracles in Nature, are reduced, and comprehended under some *Form*, or certain Law ;

^a When the Music drops, as it were, or sinks on the sudden.

^b See the *de Augment. Scientiar.* p. 70. See also the *Sylva Sylvarum*, passim ; particularly under the Article *Sound*.

^c How far this contributes to the Investigation of *Forms*, may appear from *Apb. 4. Sect. I. Part II.*

Law; so that all Irregularity or Singularity may be discover'd to depend upon some common *Form*; and the Miracle only rest in the exact Differences, Degree, and extraordinary Concurrence; and not in the Species itself. But the Contemplations of Men at present proceed no farther, than to suppose such Things as these to be Secrets, great Works of Nature, and as it were causeless, and to make them Exceptions to general Rules.

57. As Examples of *Singular Instances*, we have the Sun and Moon *Exemplified* among the Stars; the Loadstone among Stones; Quicksilver among Metals; the Elephant among Quadrupeds; the Sense of venereal Pleasure among the Kinds of Touch; and the Scent of the Blood-hound among the Kinds of Smell.

58. So with the Grammarians, the Letter S is held *singular*; for the easiness of its Composition with Consonants; sometimes with double, and sometimes with triple ones: which is a Property of no other Letter.

59. A large Collection of such *Instances* should be made; because they whet and quicken the *Enquiry*; and also rectify and cure the Understanding, depraved by Custom, and Things of common Occurrence^k. *A Collection to be made of them.*

APHORISM XXIX.

60. In the *eighth* Place come *Deviating Instances*; that is, the Errors (8.) *Deviating Instances* of Nature, and Things monstrous and uncommon, where Nature turns aside from her ordinary Course. For the *Errors of Nature* differ from *Singular Instances*, in this, that *Singular Instances* are Miracles in Species, but Errors of Nature are Miracles in Individuals^l: tho' these *Deviating Instances* have nearly the same Use with the former; as tending to rectify the Understanding, depraved by the Things to which it is most accustomed, and to disclose the most common *Forms*. For here also the Enquiry is not to cease, till the *Cause* of the Deviation be discovered; tho' this Cause does not properly rise to any *Form*; but only to the *latent Process*^m that leads towards it: for as he who knows the Ways of Nature, will the easier observe her Deviations; so he who knows her Deviations will more exactly describe her Ways. *Differ from Heteroclitic Instances.*

61. They differ in this also from *Singular Instances*, that they conduce much more to Practice, than those: for it would be very difficult to generate new Species; but 'tis easier to vary the known Species; and thence to produce many extraordinary and unknown Things; *there being a ready Passage from the Miracles of Nature, to the Miracles of Art*. For if Na- *Conduce more directly to Practice.*

^k Let it be all along observed, and carefully remember'd, that this whole *Doctrine of Instances* lays down *Precepts* for conducting *Enquiries*, both general and particular; with a direct View to the *Investigation of Forms*, or the full *Interpretation of Nature*. And in the Light of this Intimation, the Author's larger *Enquiries* are also to be consider'd. See Vol. III. *passim*.

^l See above, §. 56, 57.

^m See Part II. Sect. I. App. 1, 4, 5, &c.

ture shall once be discovered in her Variation, and the reason of it become manifest, 'twill be easy to lead her thither again by Art, where she err'd by Accident; and that not only in one Case, but in others: for Errors on one side, shew and open the Way to Errors and Deviations on all sides.

Require no
Examples.

But a colle-
ctive History.

62. And here Examples are not necessary; because they are so numerous and common. But a Collection, or *particular Natural History should be made of all prodigious and monstrous Births and Productions of Nature; and of all things new, extraordinary and uncommon in the Universe^a*. But this is to be done with the strictest and most judicious Choice; so that it may be safely relied on. And here those Things are principally to be held suspect, which in any sort relate to Religion; as the Prodiges of *Livy*: and those no less, which are found in the Writers of *Natural Magick*, *Alchemy*, or other Writers of the like Kind, who are the professed Admirers, or as it were Adorers of Fable and Fiction. But all the Particulars for this Purpose are to be derived from grave, judicious and faithful History, and just Relation.

APHORISM XXX.

(9.) Frontier
Instances.

Their Use.

Exemplified.

63. In the *ninth* Place come *Frontier Instances*; which we sometimes also call *Participles*^o. These are such as exhibit those Species of Bodies which seem composed of two Species, or to be Rudiments betwixt one Species and another; but these *Instances* may be justly reckoned among the *singular* or *heteroclite* Kind^p, as being rare, or extraordinary in the Universe; yet for their Dignity they ought to be separately placed and treated. For they excellently indicate the Composition and Structure of Things; and suggest the Causes of the Number of the ordinary Species in the Universe; and lead the Understanding from that which is, to that which may be.

64. Examples of these are, (1.) Moss, which is something betwixt Putrefaction, and a Plant; (2.) certain Comets, which are of a Nature betwixt Stars and fiery Meteors; (3.) Flying-Fishes, which are a Species betwixt Birds and Fish; (4.) Batts, which are betwixt Birds and Quadrupeds; (5.) the Beast so like ourselves, the *Ape*^q; (6.) the bisform'd Births of Animals; (7.) the Mixtures of different Species, &c.^r

APHORISM

^a See Vol. I. p. 45. and Vol. III. p. 8—16.

^o From their Participation of two different Natures; as a Participle, in Grammar, participates of a Noun and a Verb.

^p See above, Aph. 28.

^q *Simia quam similis, turpissima bestia, nobis.*

^r *Viz.* Mules, Mungrels, Dogs by the Mixture of a Dog and a Fox; and the like in other Beasts, Birds, and Fish, where the *Instances* can be found.

APHORISM XXXI.

65. In the *tenth* Place come *Instances of Power*; or, as we sometimes ^(10.) *Instances* call them, *Trophies or Ensigns of Power, Inventions*, or the Works of Mens ^{of Power.} Hands; that is, the most noble and perfect Works, and as it were the Masterpiece in every Art. For since the Design is to bend Nature to Things, and bring her to serve the Turn of Man^r; 'tis absolutely proper that the Works, already in Mens possession should be enumerated and set down, (as so many Provinces already subdued and cultivated) especially such Works as are best understood, and brought nearest to Perfection: because these afford a short and easy Passage to farther Discoveries. For if any one, after an attentive Consideration of the Works ^{Their Use.} already extant in this Kind, wou'd determine to use his best and strongest Endeavours, he might doubtless either carry them somewhat farther, or convert them to some other obvious Purpose; or apply and transfer them to more noble Uses than were known before^r.

66. Nor is this all; but as by extraordinary and uncommon, or miraculous Works of Nature, the Understanding is rouzed, excited, and ^{The Caution} elevated to the Discovery of the *Forms* capable of producing them^r; so the like is done by the wonderful and extraordinary Works (or Miracles) of Art; but in a much greater Degree: because the Manner of effecting, producing, and working such Miracles of Art, is generally plain; whereas Miracles of Nature are commonly more obscure and dark. But here the greatest Caution is required, that such Miracles of Art may not depress the Understanding, and fix it, as it were, to the Earth. ^{they require.}

67. For there is Danger left, in these Works of Art, which appear like so many ultimate Perfections, and utmost Stretches of human Industry, the Understanding should be captivated, chain'd down, or, as it were, enchanted with them; so as not to converse with other Things; but imagine that nothing of the same kind can possibly be effected in any other Way; and that no farther Improvement can be made, except by operating in the same Way, with greater Diligence, Exactness, and a better Apparatus.

68. On the contrary, this is to be held certain, that the Ways and Means of effecting the Things and Works hitherto discover'd and described, are generally scanty and defective; and that all

^r Let a clear and strong Conception be had of the End in View; which is no less than to acquire such a Command and Mastery over Nature, as that Men may use her like a ready Instrument, or Agent, in effecting the greatest Works; such as lengthening Life, ruling the Weather, and the like; which to vulgar Philosophers appear Impossibilities.

^g This directs us to a short and facile Method of improving the known Arts, and inventing new ones. See the Section upon *Learned Experience* in the *de Augmentis Scientiarum*, Vol. I. p. 119.

¹ For every thing producible, is produced by its *Form*. See Part II. *App.* 4. and the first Section throughout. This Point being absolutely fundamental, and of the very utmost Importance, cannot be too often inculcated, or too well understood: for in this, all the Power both of Men and Nature centers.

greater Power and Ability depends, and is regularly deducible from the *Fountain of Forms*, not one whereof is hitherto discover'd ^w.

69. And, therefore, as we formerly observed ^x, though a Man should ever so thoroughly have studied the Nature of the warlike Engines, and battering Rams of the Ancients, or even have spent his whole Life in the Enquiry; yet he would never have fallen upon the Invention of Ordnance, and Gun-Powder; no more than he who should have employ'd his Observations and Thoughts upon the Woollen and Linen Manufactures, would have thence discover'd the Manufacture of Silk ^x.

70. And hence all the more noble Inventions will, if duly consider'd, be found owing not to slender Discoveries, Applications, and Enlargements of Arts; but entirely to Chance, or Accident; whose slow and lingering Motion, with which it creeps thro' Ages, nothing can anticipate, prevent, or shadow out before-hand, but the *Discovery of Forms* ^x.

*A History to
be made of
them.*

71. The Things of this Kind are so numerous, as to need no particular Instances. The direct Business is, to visit and thoroughly inspect all the *mechanic Arts*, and all the liberal ones too, with regard to Works; and thence to make a Collection, or *particular History*, of the *capital Discoveries*, *Masterpieces*, and *most perfect Works* in each; together with the *Ways of producing the Effect*, or the *Manner of every Operation* ^x.

72. But we do not confine the Diligence that should be used in this Collection, to Things which are only judg'd Masterpieces and Secrets in any Art, so as to raise the Admiration: for Admiration is the Child of Unfrequency; as whatever happens seldom, tho' in its Kind but vulgar, yet produces Wonder.

*The Singula-
rities of Art
to be collected.*

73. On the contrary, those Things which ought to be admired, by reason of the Differences of their Species, compared with other Species, are slightly passed over, if they are familiar and obvious: Whereas the *Singularities of Art* are not less to be observed than the *Singularities of Nature*, mentioned above ^b: and as among the *Singularities of Nature*, we have placed the Sun, and Moon, the Loadstone, &c. which tho' very common Things, are almost singular in their natures; the same is to be done in the *Singularities of Art*.

74. For

^w *Viz.* Not according to the precise and infallible Method of the Author, laid down and exemplified in the first Section of this Second Part of his *Novum Organum*; and farther continued and improved in the present *Section*; which, however, leaves the Business imperfect; the Completion of the Whole being reserved for a *Third Part* of this general Work. See above, *Aph.* 21.

^x *Page* 399.

^y See *Part I. Aph.* 109, 110.

^z Let sufficient Attention be given to this Paragraph; for much depends upon it.

^a This indeed would be a capital Work; and we conceive Hopes that something of the kind is the View and Design of the *Royal Academy of Sciences at Paris*; *viz.* the describing the chief mechanical Arts and Trades of *France*, with the Engines, Instruments, Tools, Processes, and Ways of Working at present made use of by the best Masters. This Work is said to have been many Years in hand; and will doubtless add great Honour to that illustrious Body.

^b *Aph.* 28:

74. For Example, *Paper*, tho' a very common Thing, is a *singular* *These Singular*
Instance of Arts. For if well observed, artificial Matters are either merely *rities exem-*
wove with direct and transverse Threads, as Silk, Cloth, Linen, &c. *plished, in Pa-*
or made of concreated Juices, as Brick, Clay, Glafs, Enamel, Porcelane, *per.*
and the like, which if well united shine, but if less united, prove hard,
but bear no Polish. And all these latter Substances, made of con-
created Juices, are brittle, and do not hold tenaciously together. On
the contrary, Paper is a tenacious Substance, that may be cut, or torn;
so that it resembles, and in a manner rivals the Skin, or Membrane of
some Animal; the Leaves of some Plant; or the like Production of
Nature: for 'tis neither brittle, as Glafs; nor thready, as Cloth; for
tho' it has its Fibres, yet it has no distinct Threads; but exactly re-
sembles the Texture of natural Matters: infomuch that the like can hardly
be found again among artificial Things; but it remains perfectly singu-
lar. And in artificial Things, those, doubtless, are to be preferr'd which
imitate and resemble Nature the nearest; or which, on the other hand,
powerfully govern, invert or change her^c.

75. Again; among Instances of Power, or the Inventions and manual *Matters of*
Works of Men, Matters of Dexterity, Delusion and Diversion, are not *Dexterity.*
to be rejected wholly: for some of these, tho' of small Use, and only
ludicrous, may yet be rich in Information.

76. Lastly; neither are superstitious, and those commonly call'd *Magical and*
magical Matters, to be quite excluded: for altho' Things of this Kind *superstitious*
lie strangely buried, and deep involved in Falshood and Fable; yet some *Matters.*
regard should be had to discover whether no natural Operation is con-
cealed in the Heap: For Example, in Fascination; the Power of Imagi-
nation; the Sympathy or Consent of Things at a distance; the Com-
munication of Impressions, from Spirit to Spirit, as well as from Body
to Body; and the like^d.

APHORISM XXXII

77. It appears from what is above deliver'd, that five of the *In- A History of*
stances already mentioned; (*viz.* (1.) the *Conformable*; (2.) the *Singular*; *five kinds of*
(3.) the *Deviating*; (4.) the *Frontier Instances*; and, (5.) the *Instances of* *Instances to*
Power, ought to be reserved, as the rest before explained, and many of *be made.*
the following ought to be, till any particular Nature is enquired into;
but a Collection of them is immediately to be made from the Beginning;
as a certain *particular History*; in order to the digesting of the Things which
enter the Understanding, and correct the bad Habit of the Mind itself;
for the Mind must needs be tinged, infected, and at length perverted and
distorted.

^c See the *Sylva Sylvarum*, passim.

^d See the Articles *Imagination*, and *Sympathy*, in the *Sylva Sylvarum*.

distorted, by the daily and accustom'd Inroads, and Incurfions made upon it^d.

Its Use.

78. These *Instances*, therefore, are to be employ'd as a certain *Preparative*, to rectify and cleanse the Understanding^e: for whatever draws the Understanding from the Things whereto it is accustomed, at the same time lays it smooth and even, for receiving the dry and pure Light of just Ideas and Notions. These *Instances* also prepare and open the Way to *Practice*; as we shall shew hereafter^f.

APHORISM XXXIII.

(11.) *Friendly and Hostile Instances.*

79. In the *eleventh* Place come *Friendly*, or *Accompanying* and *Hostile Instances*, which we call *Instances of fixed Propositions*. These are such *Instances* as exhibit a Body, or Concrete, wherein the Nature enquired after constantly attends, as an inseparable Companion; or, on the contrary, wherein the Nature sought perpetually absents, and disappears, as a Foe or Enemy. And of this Kind of *Instances*, fixed, determinate and general Propositions are formed, either negative or affirmative; wherein the *Subject* will be a certain Body, in the Concrete, and the *Predicate*, will be the Nature sought^g. But particular Propositions are by no means fixed, where the Nature sought is fluctuating and moveable in any Concrete; whether it be coming on, or acquired; or again, going off or deposited: therefore particular Propositions have no great Prerogative; excepting only in the Case of *Transmigration*, of which we spoke above^h. Yet even these particular Propositions are of great Use, when confronted, and compared with those that are universal; as we shall shew in its proper Placeⁱ. But we do not require, even in these *universal Propositions*, a rigorous or absolute Affirmation or Negation; they being sufficient for the Purpose, tho' there should be some singular or rare Exception to them.

The Use of Friendly Instances.

80. The Use of *Accompanying*, or *Friendly Instances*, is to bring the Affirmation of the *Form* to a narrow Compass; for, as in the *Travelling Instances*,

^d The Meaning is, that by constantly conversing with such Things only as are common, familiar, and obvious, the Mind acquires a strong Bent, or Habit; whereby it judges that all Things are conformable to these: And hence we frequently impose gross Sophistry upon our selves for Truth; and argue, and act, in a strangely perverse and ignorant Manner: whereas, before we can reason, judge, or philosophize truly, the Mind must be acquainted and familiarized with Things of agreeing, disagreeing, participating, singular, and extraordinary Natures; as well as with those of the common, the obvious, and ordinary Kind. See the *Doctrine of Idols*, Part I. *Aph.* 38—61.

^e *Viz.* From its *Idols*.

^f See below, *Aph.* 50. of the present *Section*.

^g So, in the Enquiry of *Heat*, Flame is the Subject, in the Concrete; and Heat the Predicate, or Nature sought. See below, §. 81, 82.

^h See above, *Aph.* 23.

ⁱ Which seems to be in the *ascending and descending Scale of Axioms*, which is wanting. See above, *Aph.* 21.

Instances^k, the Affirmative of the *Form* is contracted, so that the Form of the Thing must be found to be somewhat introduced, or destroyed, by the Act of Transmigration; after the same manner, in *Accompanying Instances*, the Affirmative of the *Form*, is so pent up or confined, that it must necessarily be somewhat that may attend and enter such a Concretion of Body; or else fly from and shun it: whence he who well understands the Constitution or Structure of this Body, will not be far from disclosing the *Form of the Nature sought*.

81. For Example, let the Nature sought be *Heat*; and an Accompanying Instance is *Flame*: for in Water, Air, Stone, Metal, and numerous other Bodies, Heat is moveable, and may come and go; but all Flame is hot: so that Heat perpetually attends in the Concretion, or Whole, of Flame. But there is no *Hostile Instance*^l of Heat to be found; for, as to the internal Parts of the Earth, the Sense has no Cognizance thereof; but of all the Bodies known to Men, there is no Concrete unsusceptible of Heat^m.

Exemplified in the Subject of Flame.

82. Again, let the Nature sought be *Consistence*; and Air is a *Hostile And Consistent Instance*ⁿ: for Metal may flow, and be consistent; so may Glass: Water likewise may be consistent, when it is froze: but 'tis impossible that Air should ever be consistent, or put off its Fluidity.

83. But there remain two *Admonitions*, with regard to these *Instances* *Admonitions of fixed Propositions*, useful to the Business in hand: the first is, that if an Affirmative or Negative be universally and plainly wanting, this should be carefully noted, as a Non-Entity; as we did in the Subject of *Heat*^o; where a *Negative*, as to all the Bodies within our Knowledge, is universally wanting^p.

Admonitions relating to them.

84. In like manner, if the Nature sought be *Eternity*, or *Incorruptibility*; we have universally no *Affirmative* upon this *Earth*^q: for neither can *Eternity* or *Incorruptibility* be attributed to, or predicated of any Substance below the Celestial Bodies, or above the internal Parts of our Globe.

85. The other *Admonition* is, that to the *universal Propositions*, as well affirmative as negative, with regard to any Concrete, those Concretes also be *subjoin'd*, which seem to approach nearest to that which is the Non-Entity: as for Example, in the Subject of *Heat*, the softest or mildest Flames; or such as burn the least; and again, in the

^k See above, *Apb.* 23.

^l *Viz.* The Converse of an accompanying Instance. See §. 79.

^m See the *Tables* for investigating the *Form of Heat*, p. 433, &c.

ⁿ Because Consistence always flies from Air; or, in other Words, Air always remains fluid.

^o See *Table II.* and *III.* See also above, §. 81.

^p All the known Bodies, being, without Exception, susceptible of *Heat*. See *Table III.* *Apb.* 20.

^q That is, nothing here below is excluded from Corruptibility and Change.

^r See below, *Apb.* 34.

^s Suppose the Flame of Spirit of Wine, the *Ignis Fatuus*, or that harmless lambent Flame, if real, said to have play'd about the Heads of certain Children.

the Subject of Incorruptibility, Gold, which comes the nearest to an incorruptible Body: for all these Things indicate the *Limits of Nature*, or shew the Distance betwixt Existence and Non-Existence; and serve to confine, or circumscribe *Forms*, so as to keep them from sliding or wandering out of the Limits and Conditions of Matter ^t.

APHORISM XXXIV.

(12.) *Subjunctive Instances.*

Their Use.

Exemplified.

86. In the *twelfth* Place come the *Subjunctive Instances*, mentioned in the preceding *Aphorism* ^u; which we otherwise call *Instances of Extremity*, or *Termination*: for these *Instances* are not only useful, as being subjoined to *fixed Propositions*; but also by themselves, in their own Particular; as excellently shewing the true Divisions, or Separation of Nature; the Measures of Things; and how far Nature may act, or suffer: and again, they shew the Transition of Nature, from one Thing to another.

87. Of this Kind are Gold, in Weight; Iron, in Hardness; the Whale, in Bulk of animal Body; the Hound, in Point of Scent; the Explosion of Gunpowder, in sudden Expansion; and the like. Those Things also which are last in the lowest Degree, should be no less regarded than those that are first in the highest: as Spirit of Wine, in Weight, or Levity; Silk, in Hardness or Softness; the minute Worms of the Skin, in animal Bulk ^w, &c.

APHORISM XXXV.

(13.) *Instances of Alliance.*

Their Use.

88. In the *thirteenth* Place come *Instances of Alliance, Confederacy, or Union*; that is, such as mix and unite Natures, supposed to be heterogeneous, and noted and marked out for such by the Divisions commonly received. For these *Instances of Alliances* shew, that the Operations and Effects attributed as peculiar to certain heterogeneous Natures, agree also to others; so as to prove that the Heterogeneity which was founded in Opinion, is not true, or essential; and nothing more than the Modification of a common Nature. Whence these *Instances* are of excellent Use, to rouse and elevate the Understanding from Differences to Genusses, or Kinds; and to take off the Masks, and discover the counterfeit Resemblances of Things, that occur and present themselves dress'd, as it were, in concrete Substances.

89. For

^t It deserves to be observed, how extremely careful and solicitous the Author is to keep his *Forms* from being any way notional, or abstract Things: which one might, at the first mentioning, be apt to suppose them; especially as Mens Ears have been accusom'd to *Aristotelian Forms*.

^u §. 85.

^w These are correlative to the former; so that the two Kinds limit Nature both Ways; or as well in the descending as the ascending Scale.

89. For Example, let the *Nature sought be Heat*; in this Case it seems *Exemplified in* a settled and authorized Division, that there are three Degrees of Heat; *Heat.* viz. (1.) that of the heavenly Bodies; (2.) that of Animals; and, (3.) that of Fire; and that these Heats, (especially one of them compared with the other two), are in Essence and Species, or in their specific Natures, perfectly different and heterogeneous; as the celestial and animal Heats generate and cherish; but the Heat of culinary Fire corrupts and destroys. Here, therefore, we have an *Instance of Alliance* in that common Experiment, when a growing Branch of a Vine is brought within side of a House, or into a Room where a continual Fire is kept, so as to ripen the Grapes a Month sooner than the Grapes of the same Vine are ripen'd without Doors: whence it appears, that Fruit, even while it hangs upon the Tree, may be ripened by culinary Fire; tho' such ripening might seem to be a peculiar Work of the Sun.

90. And upon such an Information as this, the Understanding easily *Lead to Differences.* rouses, throws off the Notion of essential Heterogeneity, and enquires into those real Differences to be found betwixt the Heat of the Sun, and the Heat of culinary Fire, which cause their Operation to be so dissimilar, tho' they partake of a common Nature^x.

91. These Differences will be found to be Four; viz. (1.) that the *Four Differences in Heat.* Heat of the Sun, with respect to the Heat of Fire, is much more mild and gentle in Degree; (2.) that it is of a much moister Quality, especially as derived to us through the Air; (3.) and principally, that it is very unequal, approaching one while increas'd in Strength, and afterwards receding decreased; which is a Thing of capital Use to the Generation of Bodies: for it was justly observed by *Aristotle*, that a chief Cause of the Generations and Corruptions upon the Surface of the Earth, is the oblique Motion of the Sun through the Zodiac; whence the Heat of the Sun, partly by the alternate Changes of Day and Night, and partly by the Succession of Summer and Winter, becomes wonderfully unequal. And yet this Philosopher immediately after, corrupts and spoils his own just Position; for rashly presuming to judge of Nature, as his manner is, he very magisterially assigns the Cause of Generation to the Approach of the Sun; and the Cause of Corruption to its retiring: whereas both the Access and Recess of the Sun give occasion to the Generation, as well as to the Corruption of Things; not respectively; but as it were indifferently: for inequality of Heat administers to their Generation and Corruption; but Equality of Heat, to their Conservation only^y.

92. There is a fourth Difference, of very great Moment, between the Heat of the Sun and of Fire; viz. that the Sun insinuates its Operation for great Lengths of Time; whereas the Operations of the Fire, thro' the Impatience of Mankind, are hurried to a Conclusion, in short Inter-

^x See the *Tables*, p. 433. &c.

^y See the *Sylva Sylvarum*, under the Articles *Preservation*, and *Putrefaction*.

vals. But if any one were intent upon tempering the Heat of Fire, and reducing it to a moderate and gentle Degree, which is easily practicable several Ways; and would sometimes sprinkle and intermix a little Moisture; and particularly if he would imitate the Heat of the Sun in Point of Inequality, and wait with Patience somewhat longer than Men usually do in Chemical Processes; he might get quite clear of that false Notion of the Heterogeniety of Heat; and easily imitate, rival, or in some Cases exceed the Operations of the Sun, by the means of culinary Fire*.

Instances of Alliance, exemplified in Vivification, by Heat.

93. We have a like *Instance of Alliance* in Butterflies benum'd, and as it were become dead with Cold; for these Creatures are re-animated, or brought again to Life, by means of a small Warmth of Fire: whence it easily appears, that Fire can as well vivify Animals, as ripen Vegetables. Thus in the famous Invention of *Fracaorius*, the metalline Pan, strongly heated and applied near the Head of a Person in a dangerous Fit of the Apoplexy, expands the Animal Spirits, compress'd, and as it were suffocated, by the Humours and Obstructions of the Brain; and thus excites them to Motion; in the same manner as Fire operates upon Water, or Air; and at the same time consequently expands and quickens them.

94. Sometimes also Eggs are hatched by the Heat of a Fire; which in this respect perfectly resembles Animal Heat. These Instances therefore, with numerous Instances of the like Kind, render it unquestionable, that the Heat of Fire may, in many Cases, be modified so as to resemble, and imitate, the Celestial and Animal Heats.

Exemplified in Motion and Rest.

95. Again; let the Nature sought be *Motion and Rest*. Here it seems a settled Division, drawn from the Depth of Philosophy, that natural Bodies either revolve, move in a strait Line, or continue at Rest: because Motion is either without End, proceeding to an End, or stationary in the End. Now, constant Rotation seems proper to the Heavenly Bodies; Station or Rest to the Terrestrial Globe; and the other Bodies, called Heavy and Light, being out of their natural Places, are carried strait upwards, or downwards, to the Masses or Congregations of similar Bodies; those that are light, towards the Heavens, and those that are heavy, towards the Earth: and all this appears neat and plausible in Discourse.

The irregular Motion of the Comets.

96. But we have an *Instance of Alliance* in some of the lower Comets; which, tho' they descend below the Celestial Bodies, yet move irregularly through the various Quarters of the Heavens; as appears by Experience and Observation*.

97. Another

* Here is a Foundation laid for a kind of *Chemistry* that seems to be very little known, or practised.

* See *Kol. II. p. 43, &c.*

97. Another *Instance of Alliance* relating to this Subject, is the Motion *The Motion of* of the Air, which, between the Tropicks, where the Circles of Rotation *the Air.* are larger, seems itself to revolve from East to West ^b.

98. The Flux and Reflux of the Sea, might be another *Instance of* *Exemplified in* Alliance, if the Sea was observed to revolve, tho' but slowly and faintly, *the Tides of* from East to West; yet so as to be driven back twice a Day. Upon *the Sea.* these Suppositions, therefore, it is manifest, that this Motion of Rotation does not terminate in the celestial Bodies; but is communicated also to the Air and Ocean ^c.

99. Again; that Property of ascending upwards, found in light Bo- *In the Ascent* dies, labours under a Defect; and, to this purpose, an *Instance of Al-* *of light Bo-* *dies.* *liance* may be taken from a Bubble of Water: for if Air be thrust under Water, it hastily ascends to the Surface, by the Motion of Impulse, as *Democritus* calls it, wherewith the descending Water impels and raises the Air upwards; and not by the Striving or Endeavour of the Air itself: but when it comes to the Surface of the Water, the Air is kept from ascending farther, by a small Resistance it meets with in the Water ^d, which will not presently yield to be discontinued, or separated: so that the Appetite of the Air to rise upwards is exceeding weak ^e.

100. In like manner, let the Nature sought be Gravity. 'Tis a re- *In Gravity.* ceived Difference, that dense and solid Bodies move towards the Centre of the Earth; but rare and light ones towards the Heavens; as if, in each Case, it were to their proper Places. But as to these Places, tho' the Notion of them prevails in the Schools; yet it is perfectly idle and childish to imagine that Place can have any Effect. Whence it is trifling in Philosophers to assert, that if the Earth was perforated, heavy Bodies, let fall in the Perforation, would stop at the Centre: for, in that Case, a kind of Nothing, or a mere mathematical Point, would have a Virtue and Efficacy ^f; so as either to affect other Bodies, or other Bodies to affect it: whereas Body is never affected but by Body.

101. This Appetite of Ascent and Descent, is either in the Structure *Its Cause,* of the Body moved; or in a Sympathy, or Consent, with some other *where.* Body. But if any dense and solid Body can be found, which does not move to the Centre of the Earth, this received Difference will be falsified. And if the Opinion of *Gilbert* be admitted, that the magnetic Vir-

^b See Vol. III. p. 452, &c.

^c See the Essay upon the *Ebbing and Flowing of the Sea*, Vol. III. *ad finem*.

^d The Water now throwing itself into a thin Film, or spherical Bubble, to avoid a Solution of Continuity.

^e Or, according to the late Discoveries, none at all. See Mr. *Boyle's Works*, and Sir *Isaac Newton's Principia*, passim.

^f This is the general Case of mathematical Demonstrations applied to Physics; where mere mental Powers, or Forces, are supposed, instead of those that really exist in Nature. Hence great Caution is required in the reading of mathematical Writers upon physical Subjects; lest ideal Powers should be inadvertently introduced into Matter. And let it be well consider'd and remember'd, that what is mathematically just and true, may be physically false and absurd.

true of the Earth, whereby it attracts heavy Bodies, extends not beyond its own Sphere of Activity, which always operates to a certain Distance, and no farther; and this be verified by any *Instance*; such an *Instance* will be an *Instance of Alliance* upon this Subject: but at present there is no certain and manifest *Instance* thereof².

Exemplified by an Instance of Approach, in Water-Spouts.

102. What seems to come nearest to it, is the *Cataracts*, or *Spouts*, which are met with, in sailing thro' the *Atlantic Ocean*, towards either the *East* or *West Indies*: for the Quantity and Bulk of Water suddenly discharged by these Cararacts, appear so great, that they seem to be Collections of Water made before; and to have rested and remained in these Places; and afterwards to be thrown down by some violent Cause, rather than to fall by the natural Motion of Gravity. Whence we may conjecture, that a dense and compact Body, of a large Bulk, may remain, at a great Distance from the Earth, pendulous, like the Globe of the Earth itself, without falling; till it be violently precipitated, or thrown down³. But, with regard hereto, we affirm nothing for certain. Only in this, and numerous other Cases, it may easily appear how deficient we are in *Natural History*; when, instead of verified and assured *Instances*, we are often obliged to bring bare Suppositions, in the way of Examples¹.

In the reasoning Faculty.

103. Again; let the *Nature sought* be the *reasoning Faculty*. A just Distinction here seems made betwixt the human Reason, and the Sagacity of Brutes; yet there are some *Instances* of Actions which Brutes perform, whereby they also seem to reason. Thus it is reported of a Raven, that in a Time of great Drought, espying Water in the hollow Trunk of a Tree, where the Orifice was too small for her to enter; she continued to drop small Stones therein, till the Water rose high enough for her to drink. Whence the *Reason of the Raven* afterwards became proverbial.

Dr. Vifion.

104. Lastly; let the *Nature sought* be *Vifion*. Here it seems to be an extremely just and exact Distinction betwixt *Light* and *Colour*, that *Light* is an original visible Thing, affording the primary Means of Sight; and that *Colour* is a secondary visible Thing, not to be seen without *Light*; whence it may seem no more than the Image or Modification of *Light*: and yet there appear to be *Instances of Alliance* on both Sides. Thus, for Example, in large Quantities of *Snow*, there seems to be a somewhat original, lucid Colour⁴; and in the Flame of Sulphur, a *Light* tending to *Colour*¹.

APHORISM

² Sir Isaac Newton's Doctrine and Discoveries upon this Head, are now generally known. But, perhaps, the *physical Cause of Gravity* still remains unassigned; so far, we mean, as it may be.

³ See the Account of *Spouts* in the *Philosophical Transactions*.

⁴ See above, Part II. *Aph.* 14.

⁵ For Snow affords a considerable Degree of Light, by means whereof Men travel by Night in the Northern Regions. See Mr. Boyle's *History of Cold*, passim.

¹ *Viz.* Blueness.

APHORISM XXXVI.

105. In the *fourteenth* Place come those we entitle *Crucial Instances*; ^(14.) *Crucial Instances*. deriving the Word from the *Crosses* set up where two Roads meet, to point, and mark out their Separation again. We otherwise call them *Decisive*, and *Indicatory Instances*; and, in some Cases, *Oraculous* and *Commanding Instances*.

106. They are of this Kind, that when in the Search of any Nature, the *Their Nature*. Understanding comes to an Equilibrium, as it were, or stands suspended, as to which of two or more Natures, the Cause of the Nature enquired after should be attributed, or assign'd, by reason of the frequent and common Concurrence of several Natures; then these *Crucial Instances* shew the true and inviolable Association of one of these Natures to the Nature sought; and the uncertain and separable Alliance of the other: whereby the Question is decided; the former Nature admitted for the Cause; and the other rejected.

107. These *Instances* therefore afford great Light, and have a kind of *Their Use and Excellence*. over-ruling Authority; so that the Course of *Interpretation* will sometimes terminate in them, or be finished by them. Sometimes, indeed, these *Crucial Instances* occur, or are found, among those already set down; but in general they are new, and expressly and purposely sought and applied, or after due Time and Endeavours, discovered, not without great Diligence and Sagacity.

108. For Example; let the Nature sought be the *Tide of the Sea*; *Exemplified in the Tides of the Sea*. which happens twice in the Day; and is six Hours in coming in, and six in going out; with a certain Difference coinciding with the Motion of the Moon. Now, the Cross-way of this Subject lies as follows.

109. This reciprocal Motion must of Necessity happen either, (1.) from *The Motion of the Waters going forward and backward, like Water moved in a Bason; the Tides, referred to two Kinds.* which, when it rises on one side, forsakes the other; or, (2.) from the rising and falling down of the Waters; like Water that rises in Boiling, and again subsides: but to which of these Causes the Ebbing and Flowing of the Sea should be assign'd, is the Doubt. If the former Assertion be admitted; when the Sea flows on one Shoar, it must necessarily ebb, about the same time, some where on the opposite Shoar: the Enquiry therefore is thus brought to a Point.

110. Now *Acosta*, and some others, have found, by diligent Observa- *To determine which of the two is the Fall.* tions, that on the Coast of *Florida*, and the Coasts of *Spain* and *Africa*, the Sea flows and ebbs at the same Times; not contrariwise, that when it flows on the Coast of *Florida*, it ebbs on the Coasts of *Spain* and *Africa*; and yet, when carefully considered, the *rising Motion* is not proved by this; and the *progressive Motion* disproved^m: for it is possible that

^m See above, §. 109.

that the Waters may have a progressive Motion; and yet overflow the opposite Shoars of the same Channel at the same time; that is, if the Waters be protruded and driven from another Quarter: which is the Case of Rivers ebbing and flowing on both Shoars at the same Hours; tho' the Motion here be clearly progressive; viz. the Motion of the Waters entering at the Mouths of the Rivers from the Sea.

111. It may, therefore, happen, in like manner, that an immense Collection of Waters, rolling from the *Indian Ocean*, may be compelled and driven into the Channel of the *Atlantic*; and thus overflow both Shoars at once. It must, therefore, be enquired, whether there is any other Channel, through which the Waters may at the same times be discharged or taken off: and we find there is the *South Sea* at hand; a Sea not less than the *Atlantic*; but rather wider, and of larger Extent; which may suffice for this Purpose^a.

The Crucial Instance in this Case.

112. And thus, at length, we come to the *Crucial Instance* in this Subject: and it lies thus. If it be once certainly discovered, that when it is Flood on the opposite Coasts of *Florida* and *Spain*, in the *Atlantic Ocean*, 'tis also Flood on the Coast of *Peru*, and along the Coast of *China*, in the *South Sea*; then the Question is determined, by this *Decisive Instance*; and the Flux and Reflux of the Sea we enquire after, is shewn to happen by a *progressive Motion*: for there is no other Sea, or Place left, where the Return or Reflux should be at the same time. And this may most commodiously be known, by enquiring of the Inhabitants of *Panama* and *Lima*, (where the *Atlantic* and *Southern Oceans* are separated by a small Isthmus;) whether the Sea flows on the contrary Parts of that Isthmus, at the same time, or not.

Supposing the Earth to revolve.

113. And this Decision, or Determination, seems certain, upon a Supposition of the Stability of the Earth; but if the Earth revolve, there might thence possibly happen, from the different Velocity between the rotatory Motion of the Earth, and the Waters of the Sea, a violent Protrusion or Compulsion of the Waters in a Heap upwards, so as to make the Flux; and a falling of this Heap downwards, after it could be kept up no longer, so as to make the Reflux. But of this a separate Enquiry should be made. Yet upon this Supposition, it remains equally certain, that the Sea must, of Necessity, ebb in some Places, at the same time that it flows in others.

The Crucial Instance in the rising Motion of the Sea,

May happen three Ways.

114. In like manner, let the Nature sought be the latter of these two Motions; viz. the *Motion of the Sea spontaneously rising up, and subsiding again*. If it should happen, that upon a careful Examination, the progressive Motion we speak of must be rejected; then the Cross-way of this Nature would lie thus; or go off in three different Roads. For it must necessarily happen, that this Motion, whereby the Waters rise in Flowing, and again fall back, in Ebbing, (without any additional Waters

^a See Vol. III. p. 621, &c.

ters joining them) must proceed in one of these three Ways; viz. (1.) either this Quantity of Waters must spring, or flow, from the Bowels of the Earth; and again fall back into its Receptacle; or, (2.) the Quantity of Water is not enlarged, but only the same Quantity extended, or rarified, so as to possess a greater Space, or Dimension, and again contracted; or, (3.) neither the Quantity nor the Bulk is enlarged; but the Waters, remaining both of the same Weight and Density, are raised by some *Attractive Virtue*, that draws them upwards, and calls them forth by Consent; and then permits them to go again.

115. Therefore, dropping the two other Motions^o, let the Enquiry, *The Way of* for Example, be reduced to the last; and the Question will be, whether any such Rising may happen by a Consent, or *Attractive Virtue*. *Attraction* And here, in the first Place, it is manifest, that all the Waters, as they *chose for an* lie collected in the Cavity, or Basin, of the Sea, cannot be lifted up in one *Example.* Mass together, for want of somewhat to succeed them at the bottom^o; and therefore, tho' they had any such Appetite of raising themselves, yet it would be broken and prevented by the *Connection of Things*, or as the common Phrase is, by Nature's Abhorrence, or Dread of leaving a *Vacuum* behind. It remains, therefore, that they must rise in one part; and consequently be diminished, and give way in another: whence again it will follow, that the *Attractive Virtue*, as it cannot operate equally upon the Whole, must operate strongly upon the Middle, so as to raise the Waters there; and when they are thus raised, the Shoars will be successively left, or forsaken by the Waters^a.

116. Thus, at length, we come to the *Crucial Instance*. For if it be *The Crucial* found, that in the Ebbing of the Sea, the Surface of the Water is more *Instance in* arched, and spherical, whilst the Waters rise up in the Middle, and leave *this Case.* the Sides, that is, the Shoars, shallow; and if in the Flowing, the same Surface shall become more flat and equal, viz. whilst the Waters return to their former Situation; then it may doubtless be admitted, that the Sea rises by *Attraction*: or otherwise it should be totally rejected. And it were not difficult to try, by the Sounding-Line in Streights, whether in the Tide of Ebb towards the middle of the Sea, the Sea be not deeper or higher than in the Tide of Flood. But if this shall prove the Case, it must be observed, that, contrary to the common Opinion, the Waters rise in the Ebb, and fall in the Flood; so as in the latter only to cover and overflow the Shores^r.

117. Again;

^a See above, §. 114.

^r Nothing, by Supposition, could here succeed but atmospheric Air.

^o As is now generally allowed to be the Case. See Sir Isaac Newton's *Theory of the Tides*, explained by Dr. Halley in the *Philosophical Transactions*, N. 226

For more to this purpose, see the Author's *Essay upon the Ebbing and Flowing of the Sea*, Vol. III. p. 614. And compare it with Sir Isaac Newton's *Principia*, Lib. III. Prop. 24. and Dr. Gregory's *Astronomy*, Lib. IV. Prop. 64, 65.

The apparent diurnal Motion of the Heavens.

A Crucial Instance therein.

The Copernican Motion of the Heavens and Earth, whether real or fictitious.

117. Again ; let the Nature sought be the *spontaneous Motion of Rotation* ; and in particular, *whether the Diurnal Motion, whereby the Sun and Stars rise and set, to the Sight, be a true Motion of Rotation in the heavenly Bodies ; or only apparent in them, and real in the Earth.* The following may be a *Crucial Instance* in this Enquiry. If any Motion, from East to West, is found in the Ocean, tho' it be ever so languid and feeble ; if the same Motion be found somewhat quicker in the Air, especially between the Tropicks, where, because of the larger Circles, it will be more perceptible ; if the same Motion be found brisk and strong in the lower Comets ; if the same Motion be found in the Planets, so dispensed and proportioned, that the nearer it comes to the Earth, the slower it proves, and the farther off the quicker ; but quickest of all in the Sphere of the Fixed Stars ; then doubtless the Diurnal Motion should be received for real in the Heavens, and the Motion of the Earth be rejected : because it would then be manifest, that the Motion from East to West is perfectly Cosmical^a, and by Consent of the Universe ; which having the greatest Velocity in the greatest Heights of the Heavens, gradually decreases ; and at length terminates, and comes to nothing, in what is immovable ; viz. the Earth.

118. On the other hand, let the Nature enquired into be that other *Motion of Rotation*, famous among Astronomers, and opposite and contrary to the Diurnal Motion ; viz. the Motion *from West to East* ; which the Astronomers attribute to the Planets and Sphere of the *Fixed Stars* ; but Copernicus and his Followers assign likewise to the Earth : and let it be sought whether there is any such Motion in Nature^a ; or whether it be only imaginary, and supposed for the Readiness and Convenience of Calculation, and the sake of the Beauty and Regularity of a System ; so as to make the Celestial Motions performed in perfect Circles.

119. This Motion is by no means proved true and real in the higher celestial Bodies ; neither from hence, that a Planet does not, in its diurnal Motion, return to the same fixed Star again ; nor from hence, that the Poles of the Zodiac differ from the Poles of the World : which are the two Things whereon this Motion is founded. For, the first *Phænomenon* is well solved, by the Supposition of Antecedence and Dereliction ; and the second, by spiral Lines : so that the Inequality of the Revolution, and the Declination to the Tropicks, may be rather Modifications of the same diurnal Motion, than contrary Motions, or performed about different Poles. And if we may here, for once, side with the Vulgar, and leave the Fictions of Astronomers and the Schools, (who in many Cases, without Reason, offer Violence to the Senses, and rather affect Obscurities,) we judge this Motion to be to the Sense, such as we have

^a Viz. As belonging to the whole System of Things.

^a See below, §. 120.

have above describ'd it, from a Model we once had purposely made, of Iron Wire, to represent it^a.

120. But it may be a *Crucial Instance* in this Enquiry, if it shall be found, from any History worthy of Credit, that there was a Comet, which did not revolve in a manifest Consent (tho' ever so irregularly) with the visible Diurnal Motion; but rather to the opposite Part of the Heavens: for then it will be free to judge that some such Motion, contrary to the visible Diurnal Rotation, may exist in Nature. But if nothing of this Kind can be found, such a Motion should not be embraced; but Recourse be had to other *Crucial Instances* about it^b.

121. Again; suppose the Nature sought was *Gravity*; this will be the *Cross-Road*^c. Heavy and ponderous Bodies must either have a natural Tendency to the Centre of the Earth, on account of their proper Mechanism, or else be attracted by the corporeal Mass thereof; as by a Collection of Bodies of the same Nature; and so be carried to it by Consent.

122. If the latter be the Cause, it will follow, that the nearer all heavy Bodies approach to the Earth, the stronger, and with the greater Force and Velocity, they will tend to it; but the farther they are from it, the weaker and the slower; and this to a certain Distance: whence, if they were removed so far from the Earth, as that the Virtue thereof could not act upon them; they would remain pendulous, like the Earth itself, without falling^d.

123. And, with regard hereto, this may be a *Crucial Instance*. Take a Clock that moves by Weights, and another that moves by a Steel Spring; let them be exactly adjusted, that neither of them may go faster than the other; place the Clock that goes with Weights, upon the Top of some very high Building; keep the other below; then carefully observe if the Clock above move slower than usual, on Account of the diminish'd Virtue of its Weight. Let the same Experiment be made in the deepest Mines; to shew whether such a Clock will not move faster there, for the contrary Reason; and if the Virtue of the Weights shall be found diminish'd above, and increas'd below the Surface of the Earth, let the Attraction of the terrestrial Mass be received as the Cause of Weight, or Gravity^e.

124. Again; let the Nature sought be the *Verticity of the magnetic Needle*; and the *Cross-Way* will be this. The Touch of the Magnet must either, of itself, necessarily give Iron the Property of pointing North and South; or else only excite and prepare, or fit the Iron for the Purpose; and the Motion itself, (as *Gilbert* conceives, and laboriously en-

^a See above, §. 117. and Vol. II. p. 15, &c.

^b See the Author's *Specimen of Animated Astronomy*, Vol. II. p. 15—46.

^c See above, §. 105.

^d Compare this with Sir *Isaac Newton's Laws of Motion*. See his *Princip.* in init.

^e See Sir *Isaac Newton's Principia*, passim.

deavours to prove,) be given by the Presence of the Earth: and, therefore, the Particulars which he has, with much Sagacity and Industry, discover'd, amount to this; that an Iron Nail, which has long continued in the Direction of North and South, may, by that mere Continuance, receive a Verticity; without the Touch of the Magnet: as if the Earth itself, tho' it operates weakly, by reason of its Distance, (for the Surface, or external Crust of the Earth, has no magnetic Virtue, according to him,) should yet, in so great a Length of Time, supply the Defect of the Loadstone; excite the Iron; and afterwards make it comply, when thus excited. And, again; that if ignited Iron be quenched, pointing in the Direction of North and South, it also receives a Verticity, without the magnetic Touch; as if the Parts of the Iron, put in Motion by the Ignition, and afterwards contracting themselves, in the very Instant of quenching, were more susceptible and sensible of the Virtue rising from the Earth, than at another Time; and thence become animated: but these Particulars, tho' well observed, do not clearly prove his Point.

A Crucial Instance in the Case.

125. This may be a *Crucial Instance* in the present Case. Mark the Poles of a *Terella*, and place them East and West; then lay an untouched Needle thereon, and let it remain for six or seven Days. The Needle, no doubt, whilst it lies upon the Magnet, will quit the Poles of the World; and conform to those of the Magnet; and, therefore, as long as it remains thus, it points East and West. But if the Needle shall be found, when removed from the *Terella*, or Magnet, and placed upon its Pin, immediately to turn North and South; or by degrees to move into that Direction; then the Earth's Presence is to be admitted for the Cause: but if it turns as before, East and West; or loses its Verticity; then that Cause should be accounted doubtful; and farther Enquiry be made*.

The Substance of the Moon; the Question.

126. In like manner, let the Subject of Enquiry be the *Substance of the Moon*, to determine whether it be rare, flamy, or aerial, as many of the ancient Philosophers conceived; or solid and dense, as *Gilbert*, with many of the Moderns, and some of the Ancients, contend. The Reasons of the latter Opinion depend chiefly upon this, that the Moon reflects the Rays of the Sun; and that Light appears to be reflected by none but solid Bodies. And, therefore, if there are any, those may be reckon'd *Crucial Instances*, with regard to this Subject, which demonstrate that Reflection may be made by a rare Body, as Flame is, provided it be sufficiently thick.

The Crucial Instances therein.

127. And, doubtless, one Cause of the Twilight, among others, is the Reflection of the Sun's Rays from the upper Part of the Air. We sometimes see the Rays of the Sun reflected in clear Evenings, from the Edges of dewy Clouds, with a more resplendent Brightness than

* See the *Sylva Sylvarum*, under the Article *Magnetism*,

that afforded by the Body of the Moon; and yet it is not certain that those Clouds are collected into a dense Body of Water. So likewise, we see that the dark Air behind a Window, by Night, reflects the Light of a Candle, as well as a dense Body.

128. Experiment also should be made of transmitting the Sun's Rays thro' a Hole, upon a dusky, or blue Flame: for the free, open, and unconfined Rays of the Sun, falling upon obscure Flames, seem to deaden them; and make them appear rather like white Fumes than Flames^b. And these are Instances that occur for the present, to shew the Nature and Use of the *Crucial Instances*, with regard to this Subject: tho', doubtless, better may be found for the purpose. But let it always be observed, that a Reflection from Flame is not to be expected, unless the Flame be of some Depth, Thickness, or Body; for otherwise it inclines to Transparency. But this is to be held certain, that Light, in an uniform Substance, is always either received and transmitted, or reflected^c.

129. Again; let the Nature sought be *Projectile Motion*, as the Motion of a Dart, an Arrow, a Bullet, &c. thro' the Air. This Motion the Schools, according to their Custom, have slightly pass'd over, esteeming it sufficient to distinguish it by the Name of *Violent Motion*, from that they call *Natural*; and for the first Impulse, satisfying themselves with this, that two Bodies cannot be in the same Place, otherwise a Penetration of Dimensions would ensue; without at all regarding the continued Progress of this Motion^d. *The Motion of Projectiles.*

130. The *Cross-Way* here lies thus. This Motion is either caused by the Air propelling and gathering itself behind the Projectile; as the Water does behind a Ship; and the Winds behind the Chaff which they blow away, &c. or else by the Parts of the Body not sustaining the Impulse; but urging forwards to relax themselves, by Succession, from the impelling Force. *Fracastorius*, and nearly all those who have made any subtle Enquiry into this Motion, take the first *Path*: nor can it be question'd, but the Air has some Share herein; tho', doubtless, the other Motion is the true one; as appears from numerous Experiments. *The Cross-Way thereof.*

131. But, among the rest, this may be a *Crucial Instance* to the purpose; that a Piece of stubborn Iron Plate, Wire, a Quill, or the like, being bent in the middle by the Fingers, will when let go, spontaneously fly back. Now, it is plain, that this Motion cannot be attributed to the Air, collecting itself behind the Body; because the Origin of the Motion is in the Middle of the Plate, Wire, or Quill; and not in the Extremities, or Ends^e. *A Crucial Instance in the Case.*

^b See Sir Isaac Newton's *Optics*, passim; and Dr. Hook's *Lectures of Light*.

^c See Mr. Boyle of Colours, and Sir Isaac Newton's *Optics*.

^d See Vol. III. p. 607.

^e See the *Essay upon Violent and Projectile Motion*, Vol. III. p. 606, &c.

*The Expansion
of Gunpowder
into Flame.*

*The Cross-
Road.*

132. Again; let the Nature sought be the *rapid and powerful Expansion of Gunpowder into Flame*; whereby such vast Masses of Building are overturn'd; and such great Weights thrown to a considerable Distance; as we see in the Springing of Mines, the Firing of Mortars, &c. The double Road here lies thus. This Motion is either excited by the mere Appetite of the Body, to dilate itself, after it is set on Fire; or by a mix'd Appetite of the crude Spirit of the Nitre, which, with great Rapidity, avoids and flies from Fire; and violently bursts out from the midst thereof, as from a Prison. The Schools, and the vulgar Opinion, here consider only the former Appetite: for Men have thought they philosophized notably, in asserting Flame to be endowed, by the Form of the Element, with a necessary Quality of possessing a larger Space, than the same Body possess'd when it had the Form of Gunpowder; and that this Motion must from thence ensue.

133. But here they observe not, that, tho' this be true, upon Supposition the Flame is ready generated; yet the Generation of Flame may be hinder'd by a Mass of Matter, able to suppress and suffocate it; so that the Thing may not be reduced to the Necessity they speak of. Indeed, as to the Necessity of the Expansion, and the consequent Explosion, or Discharge of the Bullet, or obstructing Body, when the Flame is generated; they judge rightly: but this Necessity is plainly avoided, if the solid Body suppress or prevent the Flame, before it is generated. And we see, that Flame, especially in its first Generation, is soft, and gentle; requiring a Cavity wherein to play, and exert itself; whence such a Violence cannot be attributed to Flame of itself.

134. Without Doubt, the Generation of this flatulent Flame, or, as it were, fiery Wind, arises from a Conflict of two Bodies, that have very different Natures; the one being highly inflammable, which is the Nature powerful in Sulphur; the other highly impatient of Flame, which is the Case in the crude Spirit of the Nitre: whence a wonderful Conflict arises; the Sulphur immediately catching all the Flame it is capable of; and the Spirit of Nitre bursting forth with all its Violence; at the same Time dilating itself, as Air, Water, and all crude Bodies do, when affected by Heat; and whilst it breaks forth, and flies off every Way, it blows up the Flame of the Sulphur, as it were, with internal Bellows: the Willow-Coal, in the Composition, serving for little more, than to incorporate, and commodiously unite, the Sulphur and Salt-Petre together^f.

*The Crucial
Instances in
the Case, of
two Kinds.*

135. But the *Crucial Instances* upon this Subject might be of two Kinds; the one with regard to those Bodies which are most inflammable, as Sulphur, Camphire, Naphtha, &c. with their Mixtures; and which, if not otherwise

^f See the *Essay upon the Cause of the Motion of Explosion in Guns and Gunpowder*, Vol. III. p. 611.

otherwise hindered, take Flame more easily than Gunpowder : from whence *The first.* it is plain, that the Appetite of Inflammability does not, of itself, produce this stupendous Effect.

136. The *other* Kind is, of those Bodies which resist and repel *The second.* Flame, as all Salts do : for we find, when these are thrown into the Fire, a watery Spirit breaks out, with a crackling Noise, before they take Flame ; which the more stubborn kind of Leaves do also, in a gentler manner ; their aqueous Part bursting forth before their oily Part takes Flame. But this appears more eminently in Quicksilver, which is not improperly called a fossil, or metallic Water : for Quicksilver, without taking Flame, almost rivals the Force of Gunpowder, by bare Eruption and simple Expansion^a ; and being mix'd with Gunpowder, is said to increase the Strength thereof¹.

137. Lastly, let the Subject of Enquiry be the *Transitory Nature of The transitory Flame, and its momentary Extinction :* for the flamy Nature does not with *Nature of Flame.* us appear permanent, and at a stay ; but to be momentarily generated, and presently after extinguished again. It is manifest, that in the Flame here supposed to be continued and durable, the Duration is not of the same individual Flame ; but happens by a Succession of new Flame, regularly generated, without continuing numerically the same ; as easily appears from hence, that if the Fewel or Aliment be taken away, the Flame presently goes out.

138. The two Ways in this Subject lie thus. The momentaneous *The Cruci-* Nature proceeds either from a Remission of the Cause that first pro- *Road.* duced it, as in Light, Sounds, and those called violent Motions ; or else from hence, that Flame, in its own Nature, cannot subsist here below without suffering, and being destroy'd, by the contrary Natures around it.

139. This, therefore, may be a *Crucial Instance in the Case.* We see in great Conflagrations, that Flames will ascend to a considerable Height ; for the wider the Basis of the Flame, the higher its Vertex rises ; and therefore Extinction appears to begin about the Sides, where the Flame is compress'd, and opposed by the Air : but the inner Parts of the Flame, untouch'd by the Air, and every where surrounded by other Flame, remain numerically the same ; without being extinguish'd, till they come to be gradually squeezed by the Air diffused about the Sides : and therefore all Flame is pyramidal, or large in its Basis, about the Fewel, but sharp at the Vertex ; the Air being its Antagonist, and not supplying Fewel. But the Smoak, which is narrower about the Basis, dilates itself in ascending, and becomes like an inverted Pyramid ; because

¹ Such, in particular, as Ivy, Bays, &c.

^a That is, supposing the Quicksilver close confined and heated, as it might be, to shew the Thing, in a Gun-barrel, with the Touch-hole stopped, and the Charge hard rammed down with Paper, &c.

Consider of the *Aurum Fulminans* ; the common *Pulvis Fulminans* ; the Ways of making the *Mercurius Fulminans* ; and the Means of increasing the Strength of Gunpowder, by Salt of Tartar, Precipitated Metals, &c.

because the Air receives Smoak, but compresses or squeezes Flame. And let no one fondly imagine, that Flame is Air set on fire; for Flame and Air appear perfectly heterogeneous^k.

A second Crucial Instance.

140. We might have a more accurate *Crucial Instance* to this Purpose, if the Thing could be manifested by Flames of different Colours. Take, therefore, a small metalline Dish, and fix therein a small Wax-taper lighted; set the Dish in a wider Vessel, and pour Spirit of Wine round it, in a moderate Quantity, so as not to touch the upper Rim or Edge of the Dish; fire the Spirit of Wine, and this will exhibit a bluish Flame; but the Wax-taper one that is yellower: and now let it be observed, whether the Flame of the Taper remains pyramidal; which may easily be distinguished through the blue-colour'd Flame of the Spirit of Wine, (for Flames do not presently mix as aqueous Liquors do;) or whether it tends not to a spherical Figure; as there is nothing present to destroy or compress it. And if the latter prove to be the Case, it may be held certain, that Flame remains numerically the same, so long as it is surrounded by other Flame, without feeling the hostile Effect of the Air^l.

These Crucial Instances, why so largely dwelt upon.

141. And so much for *Crucial Instances*; upon which we have been the fuller, that Men may gradually learn and accustom themselves to judge of Nature by *Instances of the Cross*; and *Experiments of Light*; and not by *probable Reasonings*^m.

APHORISM XXXVII.

Instances of Divorce.

142. In the *fifteenth Place*, among *Prerogative Instances*, come the *Instances of Divorce*; which indicate the Separation of such Natures as frequently meet or come together. These differ from the *Subjunctive Kind*, or *Instances* subjoined to *Accompanying Instances*ⁿ; because those indicate the Separation of a Nature from a Concrete, wherein it familiarly appears; but these the Separations of one Nature from another. These also differ from *Crucial Instances*, as determining nothing; but only admonishing us of the Separability of one Nature from another.

Their Use.

143. Their Use is to discover *false Forms*^o; and to dissipate superficial Notions and Speculations arising from obvious Things; so that they add, as it were, *Ballast to the Understanding*.

144. For

^k Dr. Hook's *Lectures of Light*, passim.

^l This is a subtle Experiment, and of great Moment. See *Vol. III. p.*

^m Which are Endless, and lead to no solid Determinations. And by this Time, if the Reader has been tolerably attentive and diligent, he will have a clear Perception of the superior Excellence and Use of this *Doctrine of Prerogative Instances*; and be enabled, in some tolerable Degree, to prosecute *Enquiries* by their Means; in order to the full Investigation and Discovery of the *Forms* of Things. But the Author's *larger Examples*, that occur in the third Volume, will render the whole still plainer.

ⁿ See above, *App. 33* and *34*.

^o See below, §. 144.

144. For Example, let the Subject of Enquiry be those four Natures which *Teleseus* calls *Chamber-fellows*; as if they came out of the same Room; viz. *Heat, Light, Rarity, and Mobility*, or Aptness to Motion. Now tho' these Natures seem to be nearly related, yet there are many *Instances of Divorce* found among them: for, (1.) the Air is rare, and ready to Motion, but not hot or shining; (2.) the Moon is lucid, without Heat; (3.) Water is hot without Light; (4.) the Motion of the magnetic Needle in the Compass, is swift and nimble; yet that Needle is a cold, dense and opaque Body: and there are many other Examples of this Kind^p.

145. Again; let the Subject of Enquiry be the *Corporeal Nature, and Natural Action*: for Natural Action seems to be no where found, but as it subsists in some Body or other: and yet with regard hereto, there may, perhaps, be *Instances of Divorce*; as in the magnetic Action suppose, where Iron is attracted to the Loadstone; and heavy Bodies to the Globe of the Earth; to which may likewise be added some other Operations performed at a Distance. For this Kind of Action is both performed in Time, by successive Moments, or not instantaneously; and in Place, by Degrees, and through Space: whence, consequently, there is some Moment of Time, and some Distance of Place, wherein this Virtue, or Action, must be in the middle, between the two Bodies that cause the Motion.

146. The Consideration, therefore, amounts to this; whether the Bodies, which are the Boundaries of the Motion, dispose or alter the intermediate Bodies, so as that by Succession, and real Contact, the Virtue may slide from Point to Point; and in the mean time exist in the intermediate Body: or whether there be nothing of this Kind, besides the Bodies, the Virtue, and the Space, or Distance.

147. Now in the Case of the Rays of Light, Sounds, Heat, and some other Things operating at a Distance; 'tis probable, that the intermediate Bodies are affected and altered: the rather because a qualified Medium is required to convey such Operations. But the magnetic or attractive Virtue passes through all Mediums indifferently; for it is not hindered by any one. But if this Virtue or Action is independant on the intermediate Body; it follows, that it is a natural Power, or Action, subsisting, for a Time, in some Place, without a Body; since it neither subsists in the terminating nor intermediate Bodies. And hence the magnetic Action may be an *Instance of Divorce*, in the Subject of *Corporeal and Natural Action*.

148. To this may be added, by way of Corollary, the following considerable Discovery; viz. that by philosophizing, even according to Sense, a Proof may be had of the Existence of separated and incorporeal Beings and

Exemplified in Heat, Light, Rarity and Mobility.

In the Corporeal Nature, and natural Action.

Magnetical Action an Instance of Divorce.

A Corollary from it.

^p By comparing this with *App. 4.* of the present Part, the Use of these *Instances*, in discovering *false Forms*, will sufficiently appear.

and Substances: for if natural Virtues and Actions, flowing from a Body, may subsist without a Body, for some time, in Space, or Place; 'tis possible that such Virtues or Actions may proceed originally from an incorporeal Substance: for a corporeal Nature seems no less required to support and convey, than to excite and generate, a natural Action.

APHORISM XXXVIII.

*Instances of
Light.*

149. Now follow five Orders of Instances, which by one general Expression, we term *Instances of Light*, or *Instances of primary, and original Information*; being such as administer to the Senses: for as all Interpretation of Nature begins from Sense; and, from the Perception of the Senses, leads, in a strait, continued and guarded Path, to the Perceptions of the Understanding, which are true Notions and Axioms; it necessarily follows, that the more copious and exact the Representations or Informations of the Sense shall be, the more easy and successful every Thing else will prove¹.

*Ranged into
five Orders.*

150. The first of these five Orders of *Instances of Light*, are such as strengthen, enlarge and rectify the immediate Actions of the Senses. The second, are such as bring down insensible Things to sensible. The third, are such as indicate the continued Processes, or Series, of those Things and Motions, which remain generally unobserved in their End or Period. The fourth, substitute somewhat to the Sense, in those Cases that leave it perfectly destitute. And the fifth, raise the Attention and Edge of the Sense; and at the same time limit the Subtlety of Things. To each of these five Kinds we shall speak in their Order².

APHORISM XXXIX.

*Instances of
Entrance.*

151. In the sixteenth Place, we therefore range *Instances of Entrance*, or *Instances of the Portal*; by which we mean those that assist the immediate Actions of the Senses. But of all the Senses, the Sight has the chief Prerogative in Point of Information; and, therefore, Helps are principally to be sought for the Improvement of the Sight. And these Helps may appear of three Kinds; viz. (1.) such as enable us to see Things that are otherwise invisible; (2.) such as enable us to see Things at a greater Distance; and, (3.) such as cause to see more exactly and distinctly.

*Of three
Kinds for the
Sight.*

*Viz. (1.) Mi-
croscopes.*

152. (1.) Of the first Kind are the newly invented *Microscopes*, which shew the latent, and otherwise invisible small Parts of Bodies; and their secret Textures and Motions, remarkably increased in the Magnitude of the Object; by means whereof, the exact Figure and Lineaments of the Body

¹ This Paragraph being fundamental and leading, requires to be well understood and remembered; the Business of raising Axioms depending upon it.

² See below, *Aph.* 39---43.

Body of the minutest Creatures; such as Flies, Fleas, Mites, &c. as also Colours and Motions, before invisible, may be seen, in a delightful, and surprizing manner¹.

153. And here, as is usual in new and strange Discoveries, a superstitious Observation has crept into the Minds of Men; as if this Invention of Microscopes did Honour to the Works of Nature, but Dishonour to the Works of Art, by shewing the one much finer than the other²: whereas the Truth only is, that natural Textures are much more subtle, than artificial ones. For these Microscopes are only of Use in the Case of minute Objects; so that if *Democritus* had seen them, he would perhaps have rejoiced, and imagined a Way was now discovered for rendering the Atoms visible, which he pronounced to be no Object of Sight.

The Error to which they have given occasion.

154. But the Unsuitableness and Insufficiency of these Microscopes, except for very minute Bodies, (and then only when such minute Bodies are not Parts of larger) destroys the Use of the Invention: which, if it cou'd be extended to large Bodies, or to small Particles of large Bodies, in the Piece, after the Manner of making a Piece of fine Lawn, appear like a Net; so as that by this Means the latent small Particles and Inequalities of Gems, Liquors, Urine, Blood, Wounds, and many other Things might be distinguished; great Conveniencies would doubtless arise from the Discovery³.

Inconvenience of the Contrivance.

115. Of the *second* Kind, are *Telescopes*; which were nobly attempted (1.) *Telescopes* and discovered by *Galilæo*; by means whereof, as by Boats or little Ships of Intelligence, a nearer Commerce may be opened and carried on with the Celestial Bodies⁴. For by the Help of these Glasses, (1.) the *milky Way* appears to be a Knot or Cluster of little Stars, perfectly separate and distinct; of which the Ancients had but a bare Suspicion. (2.) And again, by their Means it should seem, that the Planetary Regions contain more Stars besides the direct Planets⁵; and that the Heavens may begin to be spangled with Stars at a great Distance below the Sphere of the Fixed Stars; tho' with such only as are invisible, without the Help of Telescopes. And, again; (3.) by their Assistance, we may behold the Motion of those small Stars, or Satellites, about the Planet *Jupiter*; from whence it may be conjectured, that the Revolutions of the Stars have regard to several Centres⁶. (4.) Again; by their Means, the lumi-

The Discoveries made by their Means.

¹ See *Dr. Hook's Micrographia*, *Dr. Power's Experiments*, and *Lauwenboeck's Observations*, *passim*.

² Because some Microscopical Observers, upon viewing the Point of a Needle, or other the finest Works of the Hand, and comparing these with the Hairs, or downy Feathers of Animals, &c. find the former to be coarse, rough, and unfinished, in comparison of the latter; and thence fondly extol the Excellence of the Works of Nature, above those of Art.

³ But no considerable Improvement of this Kind has hitherto appeared; the greatest Magnifiers being the smallest Globules, or Spheres of Glass. See *Sir Isaac's Newton's Optics*; *Dr. Hook's Lectures of Light*, and *Micrographia*; and the *Elements of Dioptrics* in *Wolffius's Elementa Mathematicæ Universæ*. Tom. II. p. 284.

⁴ See Vol. III. p. 17.

⁵ Viz. The Satellites of Jupiter, &c.

⁶ As in *Sir Isaac Newton's System* they are found to have.

nous and opaque Inequalities are more distinctly perceived and ascertained in the Moon ; from whence a geographical Description might be made thereof^a. (5.) And, lastly ; by means of these Glasses, Spots in the Sun, and other Things of that Kind, appear to the Sight : all which are, doubtless, noble Discoveries, so far as they may be safely depended upon for real. But, indeed, I the rather incline to suspect them, because Experience seems wholly to rest in these few Particulars, without discovering, by the same Means, numerous others, equally worthy of Search and Enquiry^a.

(3.) *Instruments of Sight and Mensuration.*

156. (3.) Of the *third* Kind, are those *Staffs, Astrolabes*, and the like Instruments, for measuring Distances ; which not only enlarge and improve the Sight ; but also rectify and direct it^b. And as for the *Instances* that assist both this, and the other Senses, in their immediate and individual Actions, without affording any Information beyond that Assistance ; we here omit them, as making nothing to the present Purpose. And hence we do not mention the Contrivances for correcting any particular Defect of the Sight ; because these afford no farther Information.

APHORISM XL.

(17.) *Summoning Instances.*

Cause Things to appear.

The Ways wherein Things escape the Senses.

Substitution to be used in the first Way.

157. In the *seventeenth* Place, among *Prerogative Instances*, come those we call *Summoning or Citing Instances* ; borrowing the Term from the Bar ; where Persons are summoned, or cited to appear, who did not appear before : And, accordingly, these Instances bring down insensible Things, to such as are sensible.

158. Things escape the Senses, either, (1.) through the Distance of the Object, as to Place ; (2.) through the Interception of interposing Bodies ; (3.) because the Object is unfit to make an Impression upon the Sense ; (4.) because the Object is not sufficient, in Quantity, to strike the Sense ; (5.) because the Time is not proportionate, so as to actuate the Sense ; (6.) because the Percussion of the Object is not endured by the Sense ; (7.) and lastly ; because an Object before detained, and possess'd the Sense, so as to leave no room for a new Motion.

159. And these several Ways chiefly regard *Vision* in the first Place, and *Touch* in the second : for these two Senses give Information at large, and of common Objects ; but the three others give little Information, besides what is immediate, and relates to their corresponding Objects.

160. In the *first* Way there is no reducing the Object to Sense, except, when Things cannot be perceived by reason of the Distance, others are used, or substituted for them, which may excite and strike the Senses at

^a As is done by *Hevelius*, in his *Selenographia*.

^a See the Author's *Essay towards a Philosophical History of the Heavens*, Vol. II. p. 15. And Sir *Isaac Newton's Planetary System*, in the third Book of his *Principia*.

^b The Instruments of this Kind are numerous ; and their Descriptions frequent in the Writers upon *Instruments, Levelling, Practical Mathematics, Navigation, &c.* See these Writers enumerated at the End of the second Tome of *Wolffius's Elementa Mathematicae Universae*.

at a great Distance: as in giving Signals by the lighting up of Fires, the ringing of Bells, &c.

161. In the *second* Way, a Reduction is made, when such Things as *Reduction in the second.* lie conceal'd within, by reason of the Interposition of Bodies that cannot be commodiously open'd, are brought to the Senses, by means of those Things which are upon the Surface, or flow from within; as the State of the human Body is known by the Pulse, or Urine, and the like.

162. But the Reduction in the *third and fourth* Ways, regard numerous Particulars; and ought on all sides to be collected in Enquiries. Thus, for Example, it appears that the Air, the Spirit, and Things of that Kind, which in their whole Substance prove light and subtile, can neither be perceived nor touched: whence in the Enquiry after such Bodies, we must necessarily use *Reductions.* *The Reductions required in the third and fourth.*

163. Suppose, therefore, the Subject of Enquiry were the *Action and Exemplified Motion of the Spirit included in tangible Bodies*: for every tangible Body, with us, contains an invisible and untangible Spirit, over which the Body is drawn like a Garment. And hence arise those three powerful Springs, and that wonderful Process, of the Spirit in tangible Bodies. For, (1.) the Spirit being discharged out of a tangible Body, the Body contracts and dries; (2.) whilst detained, it makes the Body tender, supple, and soft; and, (3.) being neither totally discharged, nor totally held in, it informs, fashions, assimilates, ejects, organizes, &c. And all these are rendered sensible by visible Effects^c. *in the Action of the Spirit of Bodies.*

164. For in every tangible, inanimate Body, the included Spirit first multiplies itself, and, as it were, feeds upon those tangible Parts which are most disposed and prepared for that Purpose; and thus digests, works, and converts them into Spirit; till at last they fly off together. *This Action described.*

165. And this Business of making and multiplying the Spirit, is brought down to the Sense, by the Diminution of the Weight of the Body: for in all Drying, part of the Quantity goes off; which is not only the Spirit that pre-existed in the Body, but a Part of the Body itself; that was before tangible, and is now newly converted into Spirit: for the pure Spirit has no Gravity^d. *How made sensible.*

166. The Emission, or Exit, of this Spirit is rendered sensible by the Rusting of Metals; and other Corruptions or Putrefactions of that Kind; which stop before they come to the Rudiments of Life: for in the more compact Bodies, the Spirit finds no Pores and Passages, through which to escape; and is therefore obliged to protrude the tangible Parts, and *By the rusting of Metals.*

^c This requires to be well understood; and is explained in what follows: but for farther Information, see the *Sylva Sylvarum*, and *History of Life and Death*, passim.

^d In the Air at least; as being specifically lighter than Air. But whether any thing farther be here meant by Spirit having no Gravity, will best appear from the Author's *History of Life and Death*; the *History of Condensation and Rarefaction*, &c. See in particular, Vol. III. p. 419, 420, 422, 524, 556, &c. See also below, §. 175.

drive them before it; so as to make them issue at the same time: whence proceeds Rust, and the like^e.

*The shrinking
of Bodies.*

167. But the Contraction of the tangible Parts, after some of the Spirit is discharged, upon which Driness ensues, is made sensible by the increased Hardness of the Body; but much more by the subsequent cracking, or splitting of the Body; and the contracting, wrinkling, and and overwrapping of the Parts. Thus the Parts of Wood crack, or split asunder, and are contracted; Skins wrinkle; and if the Spirit be suddenly forced out by the Heat of Fire, they shrink so fast as to curl and roll themselves up^k, &c.

*Whence the
different Ef-
fects of Heat.*

168. On the other hand, where the Spirit is detained, and yet dilated and excited by Heat, or something analagous thereto, (as happens in the more solid or tenacious Bodies) then the Body is either soften'd, as in the Case of ignited Iron; or flows, as in melted Metals; or liquifies, as in dissolved Rosin, Wax, &c. therefore these contrary Operations of Heat, hardening some Bodies, and liquifying others, are easily reconciled; because in the first Case the Spirit is driven out; but agitated and detained in the second: the latter being the proper Action of Heat and Spirit; and the former the Action of the tangible Parts, succeeding upon the Emission of the Spirit.

*The Formation
of Organical
Bodies.*

169. But where the Spirit is neither quite detain'd, nor quite discharged; but only attempts and tries to force its Prison; and readily meets with such tangible Parts as will obey, and yield to its Motions; so that wherever the Spirit leads, they follow it; then it is that an organical Body is formed; with its distinct Parts, or Limbs; and that all the vital Actions ensue, as well in Animals as Vegetables.

*How brought
down to Sense.*

170. And these Operations are principally brought down to the Sense, by diligently observing the first Beginnings, Rudiments, Strugglings, or Tendencies towards Life, in the little Creatures bred from Putrefaction; as in the Eggs of Ants, in Worms, Flies, Frogs after Rain, &c. For there are required to Vivification, both Gentleness of Heat, and Tenacity of Body; that the Spirit may neither break forth too hastily; nor be too much confined, by the Stubbornness of the Parts; but rather be able to mould and fashion them, like Wax.

*Three different
Kinds of Spi-
rits in Bodies,
found by Re-
duction.*

171. Again; that noble Difference of the Spirit, which has regard to so many Things, is brought and submitted, as it were, to View, by numerous

^e Rust, is now usually supposed to be occasioned by the external Air, or something contained therein, that preys upon, and in part dissolves the external Surface of the Metal. Here then is what the Author calls a *Cross-Road*, that requires a *Crucial Instance*. Let Trial, therefore, be made, whether Iron will rust in an exhausted Receiver. And, by the way, let not the Examples here produced, as Illustrations of the Doctrine of *Prerogative Instances*, be supposed any way intended as Decisive: their Design being rather logical than philosophical; so as to shew the way of prosecuting Enquiries; and not themselves to serve as Enquiries. And in this View see the several regular Enquiries of the Author in the third Volume.

^k See Vol. III. p 556, &c.

numerous *Summoning* or *Reductory Instances*¹. This Difference, we mean, is that of the *truncate Spirit*, the *Spirit simply ramous*, and the *Spirit both ramous and cellulous*: the *first* whereof is the Spirit of all inanimate Bodies; the *second* the Spirit of Vegetables; and the *third* the Spirit of Animals².

172. In like manner, it appears, that the more subtile Textures and Structures of Things, (tho' visible and tangible in their entire Bodies,) are neither seen nor felt; and, therefore, in these also the Business of Information proceeds by *Reduction*. But the most radical and primary Difference of Structures, is taken from the greater or less Quantity of Matter contained in the same Space or Dimension: for the other Structures depending upon the Dissimilarity of the Parts contained in the same Body, and their Situations, are but secondary, in respect to those.

173. Thus, let the Subject of Enquiry be the *Expansion* or *Contraction* of Matter in Bodies, respectively; to discover what Quantity of Matter fills what Quantity of Space in each. Now, there is nothing truer in Nature, than those Twin-Propositions, that *Nothing can never make Something*; and that *Something can never be reduced to Nothing*³: but the entire Quantity, or total Sum of Matter in the Universe, still remains the same, without Increase, or Diminution. 'Tis also as certain, that a greater or less Quantity of Matter is contain'd under the same Space, or Dimensions, according to the Difference of Bodies⁴. Thus Water contains more Matter than Air: whence to assert, that an equal Bulk of Water is convertible into an equal Bulk of Air; is to assert, that something is reducible to nothing: as, on the other hand, to assert, that a certain Bulk of Air may be turned into an equal Bulk of Water; is the same, as to assert, that something may be made out of nothing. And from this greater or less Quantity of Matter, those Notions of Density and Rarity, which are variously and promiscuously received, may be corrected, or new ones justly derived.

174. It must be likewise allowed as certain, that this greater or less Quantity of Matter we speak of, contained in Bodies, may, by Comparison, be brought to Calculation; and the exact, or nearly exact, Proportion determined. Thus, for Example, we should not greatly differ from the Truth, to say, that a given Bulk of Gold contain'd about two and twenty times as much Matter, as an equal Bulk of Spirit of Wine; or that a Bulk of Spirit of Wine equal to the Bulk of Gold, must possess about two and twenty times as much Space as the Gold⁵.

175. But

¹ See the *Sylva Sylvarum*, passim.

² See the *History of Life and Death*, passim.

³ See Vol. III. p. 505, &c.

⁴ On this is founded the Use of the *Hydrostatical Balance*. See the Author's *History of Condensation and Rarification*, passim.

⁵ See the Author's Table of the *Specific Gravities of Bodies*, Vol. III. p. 512, 513.

The Density of Matter made sensible by Weight.

A Table of the specific Gravities of Bodies.

Its Use.

An Attempt to discover the Proportion betwixt tangible and untangible Bodies.

175. But the Density of Matter, and the Proportions thereof, are made sensible by Weight; for Weight corresponds to Quantity of Matter; with regard to the tangible Parts of Bodies: but Spirit, and its Quantity of Matter, is not cognizable by the Balance; because it rather diminishes than increases Weight¹. And, with this View, we have made a TABLE, to shew the specific Gravities, or Weights and Bulks, of all the Metals; the principal Stones, Woods, Liquors, Oils, and many other Bodies, as well natural as artificial^m. And such a Table we judge to be of infinite Use; as well to procure the Light of Information, as to serve for a Rule in *Practice*; and again to discover many Particulars, that would have been absolutely unexpectedⁿ.

176. It is no small Advantage of this Table, to demonstrate, that all the Variety found in the numerous tangible Bodies known to us, (which are compact, and neither spongy, hollow, nor in great part filled with Air,) exceeds not the proportion of twenty-two to one^o. So finite a Thing is Nature; at least that Part thereof whose Use principally regards our selves^p.

177. We also thought it worth trying, to discover the Proportions of untangible, or pneumatic Bodies, with respect to such as are tangible: for which purpose, we took an Ounce Vial; chusing it small, that the following Evaporation might be performed with the less Heat. This Vial we fill'd almost to the Neck, with such Spirit of Wine as we observed by the Table, mention'd above, to be specifically lighter, or to contain less Matter under the same Dimension, than all other tangible Bodies that are close and compact. Then we exactly mark'd down the Weight of the Spirit, and the Vial together. After this, we took a Bladder, containing about a Quart, and squeeze'd all the Air out, as near as possible; till the Sides of the Bladder collaps'd, and became contiguous; having first gently oil'd it, to render it the closer or tighter, by filling up the Pores, if there were any. This Bladder we strongly tied with a Wax Thread about the Neck of the Vial; putting the Mouth of the Vial into the Neck of the Bladder: then setting the Vial upon a Chafing-Dish of warm Embers, the Vapour of the Spirit, dilated by the Heat, and thus render'd pneumatical, gradually distended or swell'd out the Bladder every way, like a Sail. Then we immediately remov'd the Glass from the Fire; and placed it upon a Carpet, to prevent its breaking by the Cold: and now we directly made a Hole in the upper Part of the Bladder, lest the Vapour, as the Heat diminish'd, should fall back, or condense into Liquor, and disturb the Calculation. Then taking

¹ See above, §. 165.

^m See Vol. III. p. 512, &c.

ⁿ See Vol. III. p. 519, &c.

^o Suppose the Difference in specific Gravity between Gold and Spirit of Wine. See above, §. 174. See also Vol. III. p. 512, 513, 517.

^p Viz. The tangible Part.

taking away the Bladder, we weigh'd the remaining Spirit of Wine; and thence computed how much was wasted in Vapour: and, by comparison, calculating how much Space the Body possess'd in the Form of Spirit of Wine in the Vial; and again, how much it possess'd when render'd pneumatical in the Bladder; it plainly appeared, that the Body, so converted and changed, acquired a Degree of Extension a hundred times greater than it had before.

178. In like manner, let the Nature sought be *Heat or Cold, so weak Imperceptible in Degree as to be imperceptible.* These are brought to the Sense by means of a Weather-Glass; such as we have above described¹; wherein Heat expands, and Cold contracts the Air. Neither is this Expansion and Contraction of the Air perceptible by Sight; but the Air, when expanded, depresses Water; and, when contracted, raises it up: and thus alone it is that the Thing becomes visible, and sensible; and not otherwise.

179. In like manner, let the Subject of Enquiry be the *Mixture of The Mixtures of Bodies; to determine what they contain that is aqueous, oleaginous, spirituous, saline, earthy, &c. or, in particular, how much Butter is contained in Milk; how much Curd; how much Whey, &c. All these Things are reduced and brought down to the Senses by artificial and skilful Preparations, exhibited in the Form of tangible Bodies.* But the Nature of the Spirit in them, tho' not immediately perceived, is discover'd by the various Motions, and Endeavours of tangible Bodies, in the Act and Process of their Separation; as also by the Acrimony, Corrosiveness, different Colours, Smells and Tastes of the same Bodies, after Separation.

180. And, with regard hereto, Men have bestowed great Pains upon Distillations, and artificial Separations; but not with much better Success than in the other Experiments hitherto practised: as having proceeded altogether by feeling out their Way in blind Roads; or with more Labour than Understanding; and, what is worse, without imitating, copying, or rivalling Nature: but by their violent Heats, and overpowerful Operations, destroying all the Subtlety of Structure, in which the secret Virtues and Relations of Things are principally seated².

181. Nor have Men, as we elsewhere observed³, hitherto taken Notice, with regard to this kind of Separations, that numerous Qualities, in the torturing of Bodies, as well by Fire as otherwise, proceed from the Fire itself; and the Matters employ'd in the Separation; which Qualities were not before in the Composition: whence strange Fallacies have arisen. Thus all the Vapour which Water emits by Fire, is not the Vapour, or Air, before existing in the Body of the Water; but in great measure

The erroneous Procedure of the Chemists herein.

Alterations caused by the Fire.

¹ *Apb. 13.*

² As in all those called *Chemical Analyses, or Resolutions.*

³ Hence there are few genuine Separations to be found in the common *Chemistry*; even as practised by the best Hands. See the *Sylva Sylvarum*, under the Article *Gold, &c.*

⁴ See above, *Part II. Apb. 7.* and the *Sylva Sylvarum*, *passim.*

measure produced by the Dilatation of the Water, thro' the Interposition of the Heat of the Fire.

*Adulterations
in Bodies to be
sought.*

182. So likewise, in general, all exquisite Trials and Examinations of Bodies, whether natural or artificial, made to distinguish the genuine from the adulterate, and the better from the worse, should be referred to this Head; as these also make what is insensible to appear sensible: and therefore are, with great Care, to be collected from all Quarters^u.

*The Motion of
Bodies being
either too
swift, or too
slow.*

183. As to the *fifth* Way of Concealment from the Senses^w; 'tis manifest that the Action of Sense is performed in Motion, and Motion in Time; whence, if the Motion of any Body be either so slow, or so swift, as not to be proportion'd to the Moments wherein the *Act of Sensation* is performed, the Object will not be perceived; as we find in the Motion of the Hand of a Clock; and the Motion of a Bullet discharged from a Gun.

*How reduced
to the Senses.*

185. But the Motion which is not perceived thro' its Slowness, is easily and commonly reduced to Sense, by the Result or Amount of the Motion: but that which is imperceptible thro' its Velocity, is not hitherto well measured; yet the Enquiry of Nature demands that this should be done in some Cases^x.

*How Reduction
is made, where
the Object is
too powerful.*

186. In the *sixth* Case, where the Sense is hinder'd by the too great Power of the Object^y, Reduction is made either (1.) by removing the Object farther from the Organ of Sense; or (2.) taking off from its Force, by the Interposition of such a Medium as may weaken, but not annihilate it; or (3.) by admitting and receiving the Reflexion of the Object, where the direct Force of it is too strong; as by receiving the Reflection of the Sun in a Bason of Water.

*Where the
Sense is full
charged.*

187. The *seventh* Case of Concealment from the Senses, (*viz.* that wherein the Sense is so full charged with the Object, as to leave no room for the Admission of a new one,) is almost wholly confined to the Sense of Smelling, and Odours: and does not considerably regard the Subject in hand. So that thus much may suffice for the Business of reducing insensible Things to such as are sensible.

*Reduction
sometimes
made to the
Sense of other
Animals.*

188. Sometimes also Reduction is made, not to the Sense of Man, but to the Sense of other Creatures, whose Sensations, in some Particulars, exceed those of Men; as the Sensation of a Hound, in some Kinds of Smell; and the Sensations of a Cat, an Owl, &c. which see Things in the Night by the latent Light of the Air, which is not externally illuminated. For *Teleseus* has justly observed, that there is a certain original Light in the Air itself; tho' small, faint, and generally unserviceable,

^u See Mr. Boyle's *Medicina Hydrostatica*; and the *de Augmentis Scientiarum*, p. 46.

^w See above, §. 158.

^x Thus the Motion of Sounds, and even of Light, which seems the swiftest Motion of all, is now reduced to Calculation. See the Author's *History of Sounds*, in the *Sylva Sylvarum*; and Sir Isaac Newton's *Optics*, and *Principia*, passim.

^y See above, §. 158.

unserviceable, with regard to the Eyes of Men, and many other Creatures; because the Animals to whose Sense this Light is proportioned can see by Night; which it is not so probable they should do without Light, or by an internal Light of their own^a.

189. It must here be observed, that we treat only of the Failures or Insufficiencies of the Senses, and the Remedies thereof: for the Deceptions of the Senses should be referred to the particular *Enquiries of Sense, and Sensibility*^a; excepting only that grand Fallacy of the Senses, in making the Measure and Rule of Things correspond to Man; and not to the Universe: which is an Error that cannot be corrected, but by Reason and universal Philosophy^b.

APHORISM XLI.

190. Among our *Prerogative Instances*, we assign the *eighteenth Place* (18.) *Journing* to *Journing Instances*; which we also term *Instances of the Road*, and sometimes *Jointed Instances*: that is, such as indicate the Motions of Nature, gradually continued, or connected. But the *Instances* of this Kind rather escape the Observation than the Sense. And, indeed, the Negligence of Men is here surprizing: for they contemplate Nature only by Fits and Starts, or periodically; and then too it is after Bodies are compleat and finished; and not in their Process, or whilst the Operation is in hand. But if any Man desired to consider, and examine, the Contrivances and Industry of a certain Artificer, he would not be content to view only the rude Materials of the Workman, and then immediately the finish'd Work; but covet to be present whilst the Artist prosecutes his Labour, and exercises his Skill. And the like Course should be taken in the Works of Nature.

191. For Example; if any one would enquire into the *Vegetation of Exemphified in Plants*, he should have an Eye from the first sowing of the Seed, *Vegetation.* and examine it, almost every Day, by taking, or plucking up, a Seed after it had remain'd, for one, two, or three Days, in the Ground; to observe, with Diligence, (1.) when, and in what manner, the Seed begins to swell, grow plump, and be fill'd, or become turgid, as it were, with Spirit: (2.) Next, how it bursts the Skin, and strikes its Fibres, with some Tendency upwards; unless the Earth be very stubborn: (3.) How it shoots its Fibres, in part, to constitute Roots downwards; in part, to form Stems upwards; and sometimes creeping sideways, if it there find

^a See the Author's *Table of Enquiry for the History of Light and Splendor*, Vol. III. p. 322.

^b See *de Augment. Scientiar.* p. 111, 112, 113; and the *Sylva Sylvarum*, passim.

^c See Part I. *Apb.* 42, &c.

the Earth more open, pervious, and yielding : with many Particulars of the same Kind ^c.

In the Hatching of Eggs, &c.

192. And the like should be done as to Eggs, during their hatching : where the whole Process of Vivification, and Organization, might be easily viewed ; and what becomes of the Yolk, what of the White ^d, &c. Understand the same of Creatures bred from Putrefaction : for as to perfect, terrestrial Animals, 'tis somewhat inhumane to enquire into them, by cutting the *Fetus* out of the *Uterus* ; unless when Opportunity offers, by Death, Abortions, the Fortune of the Chace, &c. A Watch, therefore, is, by all means, to be kept upon Nature ; as she is better discover'd by Night than by Day ^e : for these Contemplations and Enquiries may be called Nocturnal ; by reason of the Smallness, and Durability, or slow burning of the Watch-Light, here set up.

In the relaxing or opening of inanimate Bodies.

193. The same is also to be attempted in inanimate Bodies ; and this we have endeavour'd after, by observing the Ways wherein Liquors open themselves by Fire : for Water opens one way, Wine another, Vinegar another, Verjuice another ; and Milk, Oil, &c. with a still greater Difference ; as may be easily perceived by boiling them over a soft Fire, in a Glass Vessel ^f. But these Things are here touched lightly ; the Place for treating them more exactly and fully, being when we come to enquire into the *latent Process of Things* ^g : for it must be all along remember'd, that we do not, at present, treat Things themselves, but barely produce *Examples*.

APHORISM XLII.

(19.) *Supplemental Instances, or Instances of Substitution. Procurable two Ways. Viz. (1.) By Approximation.*

194. In the *nineteenth* Place come *Supplemental Instances* ; or *Instances of Substitution* ; which we also call *Instances of Refuge* ; that is, such as afford Information where the Senses perfectly fail us : so that we have recourse to them when the *proper Instances* cannot be had. This *Substitution* is procured two Ways ; viz. either by *Approximation*, or by *Analogy*.

195. For Example ; there is no Medium found, that can possibly exclude the Operation of the Loadstone, in moving Iron ; not Gold, not Silver, Stone, Glass, Wood, Water, Oil, Cloth, Air, Flame, &c. yet, by an exact Scrutiny, some Medium may perhaps be found to deaden this Virtue, more than any other Medium, comparatively, and in some degree.

196. So,

^c See Dr. Grew's *Anatomy of Plants*, as also that of *Malpighi* ; and several Pieces to the same Purpose in the *Philosophical Transactions*, *French Memoirs*, &c.

^d See *Harvey*, *Higmore*, *Malpighi*, &c. upon this Subject.

^e Viz. Where she is removed from human Sight ; as she is in these grand Works, the Formation of Vegetables, Animals, and Minerals.

^f See this Subject prosecuted in the *Author's History of Condensation and Rarefaction*, p. 535, 536.

^g See the *Author's History of Condensation and Rarefaction* throughout, Vol. III. p. 507, &c.

196. Thus suppose, the Loadstone would not attract Iron so much thro' *Exemplified in the Loadstone.* Gold of a certain Thickness, as thro' the same Space of Air; or not so much thro' ignited Silver, as thro' the same when cold, &c. for we have not made the Trials: but it is sufficient to propose them, by way of Example ^h.

197. In like manner, there is no Body found here upon the Earth, *And in Heat.* but what is susceptible of Heat, when applied to the Fire: yet Air receives Heat much sooner than a Stone. And such is the *Substitution* made in the way of *Degree*, or *Approximation*.

198. The *Substitution* by *Analogy*, is useful; but less certain: and therefore to be practised with Judgment. This is perform'd when an insensible Thing is brought down to the Sense; not by the sensible Operations of the insensible Body itself; but by considering some other sensible Body of kin thereto. *And (2.) By Analogy.*

199. For Example; if the Subject of Enquiry were the *Mixture of Spirits*, which are invisible Substances: we are here to observe, that there seems to be a certain Affinity between Bodies, and the Matter that feeds or nourishes them. Thus Oil and fat Bodies seem to be the Food of Flame; and Water and aqueous Bodies, the Food of Air: for Flames multiply themselves upon the Exhalations of Oil; and Air upon the Vapour of Water. In this Enquiry, therefore, we may consider the Mixture of Water and Oil, which is manifest to the Sense; tho' the Mixture of Air and Flame is not perceptible. Now, Oil and Water are very imperfectly mix'd together by Composition, or Agitation; but more curiously and elaborately in Plants, Blood, and the Parts of Animals: and, therefore, something of the like kind may happen as to the Mixture of Flame and Air in untangible Bodies. For, tho' Flame and Air do not well incorporate by simple Motion; yet they seem to mix in the Spirits of Plants, and Animals; the rather, because all animal Spirits prey upon both Kinds of Moisture, *viz.* the aqueous, the unctuous, as its Aliment ⁱ.

200. In like manner, if the Subject of Enquiry be not the perfect *In the Composition of untangible Bodies.* Mixture of pneumatical, or untangible Bodies, but only their *Composition*; *viz.* whether they will easily mix among themselves: or rather, suppose, for Example, certain Winds, or Exhalations, or other pneumatical Bodies, which mix not with common Air, but only lodge and float therein, under the Form of Globules and Drops; as being rather broke and ground by the Air, than received into and incorporated with it. Now this cannot be perceived by the Sense, either in common Air, or other pneumatical Bodies, by reason of their Subtlety, or Fineness; but a certain Image, or Representation, may be had of the Thing,

^h See below, *Aph.* 43. §. 204.

ⁱ See the *Axioms* at the Close of the *History of Life and Death*, Vol. III. p. 418, &c. See also Mr. Boyle's Experiments to this purpose. *Abridgm.* Vol. II. p. 469.

with regard to its Possibility, in tangible Fluids; such as Quicksilver, Oil, Water^k, and even in Air itself, when it is broke and dissipated; or rises in small Particles, or Bubbles thro' Water; and again, an Image of it may be had in the grosser Fumes^l; and lastly, in Dust, rais'd and floating in the Air: in all which Cases, there is no Incorporation made. And this Representation is not faulty, provided it be first carefully examined, whether, among pneumatical Bodies, there may be such an Heterogeneity as is found among Liquors: for in case there is, then these Representations by Analogy may be commodiously substituted^m.

*Supplemental
Instances,
wherein use-
ful, when
the proper ones
may be bad.*

201. And tho', as we before observed, Information is to be derived from these *Supplemental Instances*, by way of Refuge or Recourseⁿ, when *proper Instances* are wanting; yet we would have it understood, that they are also of great Use, even when the *proper Instances* are procurable; particularly in strengthening the Information, with the Assistance of those. But the Time for treating of these Instances more exactly, is when we come, by the Law of Order, to the *Helps of Induction*^o.

APHORISM XLIII.

(20.) *Lancing* 202. In the twentieth Place come *Lancing Instances*; which we
Instances. also, for a different Reason, call by the Name of *Vellicating Instances*.
Their Use. We call them *Vellicating Instances*, because they twitch the Understanding; and *Lancing Instances*, because they cut or lance through Nature: whence we also call them *Democritical Instances*^p; that is, such as remind the Understanding of the admirable and exquisite Subtily of Nature; so as to excite and awaken it to Attention, Observation, and proper Enquiry.

Exemplified in 203. For Example; the following are *Lancing* or *Vellicating Instances*.
great Variety. (1.) That so small a Drop of Ink, in a Pen, should be drawn out into so many Letters, or Lines, as we find it; (2.) that Silver gilt upon its external Surface, should be drawn to such a vast Length of gilded Wire^q; (3.) that so very small a Worm as that found in the Skin, should have a Spirit, and a peculiar Structure, and Organization of different Parts; (4.) that a little Saffron should tinge a whole Hogshead of Water^r; (5.) that a little Civet, or Musk, should fill a large Chamber with its Odour; (6.) that such a great Cloud of Smoke should be rais'd from a little Incense; (7.) that the exact Differences of Sounds should be every Way convey'd

^k These being heterogeneous Fluids, and not mixing together upon shaking.

^l Which do not incorporate with the Air.

^m See Mr. Boyle upon the different Surfaces of Fluids in contact. *Abridgm.* Vol. I. p. 316—318. and 388—396.

ⁿ See above, §. 194.

^o A Part of the *Novum Organum* that is wanting. See above, Part II. *Apb.* 21.

^p Alluding to the *Atoms* of Democritus. See the Author's Essay upon the *Corpuscular Philosophy*, Vol. III. p. 599.

^q See Mr. Boyle upon *Effluvia*, *Abridgm.* Vol. I. p. 405.

^r See Mr. Boyle upon *Effluvia*, &c. Vol. I. p. 397—438.

convey'd through the Air; and even through the Holes and Pores of Wood and Water, (tho' much weakened, indeed, in the Passage;) and be reflected with great Distinctness and Velocity; (8.) that Light and Colour should so suddenly pass through such a Bulk of solid Matter, as Glass, or of a Fluid, as Water; yet so as at the same time to convey a great and exquisite Variety of Images; even tho' the Light suffers Refraction and Reflection; (9.) that the Loadstone should operate through all Kinds of Bodies, even the most Compact and Solid; and what is still more wonderful; (10.) that in all these Cases, the Action of one Thing, does not greatly hinder the Action of another, in a neutral or indifferent Medium, such as the Air is. Thus numberless Images of visible Objects are carried through the Air; numberless Percussions of articulate Voices; numberless specific Odours; as those of Violets, Roses, &c. even Cold, Heat, and magnetical Virtues; all pass through the Air, at once, without obstructing one another; as if each of them had its own separate Way or Passage, so as to prevent impinging against, meeting with, or obstructing one another.

204. To these *Lancing Instances*, may be advantageously subjoined those we term the *Limiting Instances*, with regard to this Lancing; as for Example, in the Cases just mentioned, that (1.) one Action does not disturb or hinder another of a different Kind; tho' two of the same Kind damp or extinguish each other; that, (2.) the Light of the Sun extinguishes or overpowers the Light of the Glow-worm; that, (3.) the Report of a Cannon drowns the Voice; that, (4.) a stronger Odour overpowers one that is more delicate; that, (5.) a stronger Heat prevails over one that is more gentle; and, (6.) that an Iron-Plate put between the Loadstone and a Needle, hinders the magnetic Virtue. But the proper Place of treating these *Instances* also, is under the *Helps of Induction*.

205. And so much for the *Instances of Help to the Senses*; which are *Introduction* of capital Use in the *Business of Information*: for Information begins with *to Practice* the Sense^t. But the whole Affair terminates in Practice, and Works: which are the End; as Information is the Beginning^u. And, therefore, the *Instances of principal Use in Practice*, are next to follow.

APHORISM XLIV.

206. The *Instances of principal Use in Practice* are of two Kinds, and *Practical Instances* seven in Number; all which we call by the general Name of *Practical Instances, what*. Now Practice has two Inconveniences, or Defects; and so many *general Kinds of Prerogative Instances*^w. For Practice either fails, or over-burdens. Practice fails principally from a wrong Determination,

^t A Part not entered upon by the Author. See above, *Aph.* 21. and 43.

^u See above, *Aph.* 38.

^w See Part II. *Aph.* 1.

^v Viz. Two, corresponding to the two Kinds of Defects of Practice: four Defects of the first Kind are enumerated in this Paragraph; and three of the second, in the next.

*Mathematical
Instances.*

tion, and Measure of the Powers and Actions of Bodies; especially after a diligent Enquiry into the Subject. But the Powers and Actions of Bodies are circumscribed and measured; either, (1.) by *Space of Place*^x; (2.) by *Moments of Time*^y; (3.) by the *Correspondence or Proportion of Quantity*^z; or, (4.) by the *Predominancy of Virtue*^a: and unless these four Things are well and diligently weigh'd, the Sciences indeed, may, perhaps, be beautiful in Show and Appearance; but they will remain unfruitful, or barren of Works. And the four *Instances*, with regard to these four *Particulars*, we call, in general, *Mathematical Instances*; or *Instances of Mensuration*^b.

*Practice, how
rendered bur-
densome.*

207. Practice proves burdensome either, (1.) from the admixture of uselefs Things^c; (2.) from a Multiplicity of Instruments^d; or, (3.) from the Bulk of the Matter, and Bodies required, in certain Works^e. Those *Instances*, therefore, ought to be highly esteemed, which either, (1.) direct and determine Practice to such Things as chiefly regard the Benefit and Advantage of Mankind; or, (2.) retrench the Number of Instruments required; or, (3.) save and lessen the Materials to be employ'd.

*Propitious In-
stances.*

208. And the three *Instances* corresponding to these three *Particulars*, or *Requisites*, we call by the single Name of *Propitious* or *Benevolent Instances*^f. We shall speak of these seven *Instances*, separately; and with them conclude this Section of the *Doctrine of Prerogative Instances*.

APHORISM XLV.

*(21.) Instances
of the Staff.*

209. In the *twenty-first Place*, therefore, among *Prerogative Instances*, come *Instances of the Staff*, or *Measuring-Rod*; which we also call *Permeating*, or *Terminating Instances*; for the Forces and Motions of Things operate and exert themselves in certain Spaces, that are not indefinite or fortuitous, but determinate and finite: and the due Observance and marking of these Spaces in every Nature sought, is of great Importance to Practice; not only in preventing us from being deceived by it; but also in enlarging and rendering it more extensive and powerful: For it is sometimes possible to extend Virtues and Powers; and, as it were, bring Distances nearer, as we see in *Telescopes*.

*Virtues have
their Sphere
of Activity.
Some operate
at a Distance.*

*Some operate
only in Con-
tact.*

210. There are also many Virtues that operate and extend their Force only by manifest Contact; as in the Percussion of Bodies; where one Body does not move another, unless the impelling Body touches the Body impelled. So, likewise, external Remedies, as Unguents and Plasters,

^x See below, *Aph. 45.*

^y See below, *Aph. 46.*

^z See below, *Aph. 47.*

^a See below, *Aph. 48.*

^b Which see below, *Aph. 45-48.*

^c See below, *Aph. 49.*

^d See below, *Aph. 50.*

^e See below, *Aph. 51.*

^f See *Aph. 49-51.*

sters, exert not their Virtues, without touching the Body. And, lastly, the Objects of the Taste, and Touch, do not strike, or affect, if not contiguous to the respective Organs.

211. There are also other Virtues, which operate at a small Distance; *Others operate very few whereof have been hitherto observed; whilst there are more of them than Men suspect. Thus, to give obvious Examples; Amber, and Jet, attract Straws, and other light Bodies. Bubbles of Water approaching each other, run together. Some purgative Medicines draw the Humours downwards, and the like. But that magnetic Virtue whereby Iron and the Loadstone, or Loadstones themselves, meet each other, operates only in a certain little Sphere of Activity; but if there be any magnetic Virtue flowing from the inner Parts of the Earth, to the Needle, in respect of its Verticity, the Operation is performed at a great Distance.*

212. Again; if there be any magnetic Virtue, which operates by Con-*Some at very sent, between the Globe of the Earth, and ponderous Bodies; or between great ones.* the Globe of the Moon and the Waters of the Sea; which seems highly probable from the Spring-Tides^a; or between the Sphere of the Fixed Stars and the Planets, so as to attract the Planets to their Apogees; all these must operate at very great Distances.

213. There are also found certain Communications of Flame, to con-*Instanced in siderable Distances, in certain Materials: as they relate, in particular, of the Naphtha of Babylon. Heat, likewise, insinuates itself to great Distances; and so does Cold: insomuch, that the huge Masses of Ice broke off, and floating in the North Sea, and thence coming into the Atlantic Ocean, strike a Coldness many Leagues off, perceptible to the Inhabitants about Canada^b.* *Flame, Heat, and Cold.*

214. Odours, likewise, tho' these seem always attended with a corpo-*In Odours, real Emission of the odoriferous Substance, operate at considerable Di- Sounds, and Light.* stances; as appears to such as sail along the Coasts of *Florida*, or some Parts of *Spain*, where there are whole Groves, or Woods of Lemmons, Oranges, and the like odoriferous Trees; or Thickets of Rosemary, Marjoram, &c.^c And lastly, Sounds, but particularly the Rays of Light, operate to prodigious Distances^d.

215. But all these Virtues, whether they operate to small, or large *All Virtues Distances, certainly operate to finite ones, and such as are known to limited.* Nature: so that there are certain fixed Bounds, which they cannot exceed; and that in Proportion, either (1.) to the Bulk and Quantity of the Bodies; or, (2.) to the Strength or Weakness of the Virtues; or, (3.) to the Suitableness or Unsuitableness of the Medium: all which, ought

^a See Vol. III. p. 614, &c.

^b See Mr. Boyle's *History of Cold*, passim.

^c See Mr. Boyle of *Effluvia*.

^d See Mr. Boyle, Dr. Hook, Sir Isaac Newton, the *Philosophical Transactions*, French *Memoirs*, &c.

ought to be carefully observed, and brought to Computation¹. And again; the Measures of those called *Violent Motions*, or the Motions of Projectiles, as Bullets from Guns, the Motions of Carriages, &c. ought to be observed and determined: for these also have manifestly their fixed Limits.

Some act at a Distance, and not by Contact. 216. There are, likewise, certain Motions and Virtues, contrary to those that operate by Contact, and not at a Distance; as acting at a Distance, and not by Contact: and again; others that operate weaker at a small Distance, and stronger at a greater. Thus Vision is not well performed in Contact; but requires a certain Medium, and a certain Distance, to be perfect: tho' I have been assured, by a Person of Veracity, who was couched for Cataracts in his Eyes, (which is an Operation performed by means of a small silver Needle, thrust between the first Coat of the Eye, to remove and force away the Film of the Cataract into the Corner of the Eye,) that he clearly saw the Needle moving over the Pupilla, or Sight of the Eye^m.

Exemplified in Vision. 217. But allowing this, 'tis manifest, that larger Objects cannot be well or distinctly seen, except in the Vertex of a Cone, made by the converging of the Rays from some Distance. Thus old Men see better when the Object is removed a little farther off, than when it is near. And it is certain, that in Projectiles, the Percussion is not so strong at too small a Distance, as it is soon after, or at the due Distance. The Measures, therefore, of these Things, and others of the like Kind, are to be set down, to determine their Motion in Point of Distance.

The Motions of Expansion to be measured. 218. We must not omit another Kind of Local Measure of Motions, which regards not progressive, but *spherical Motion*; that is, the Expansion of Bodies into a larger Sphere, or their Contraction into a less. For we should enquire, among the Measures of Motion, what Degree of Compression or Extension, Bodies, according to their Nature, may easily and readily suffer; and at what Point they begin to resist; and at length, will sustain no more. Thus when a blown Bladder is compress'd, the Air sustains some Degree of Compressure; but if the Compressure be too great, the Air enduring it no longer, bursts the Bladder, and frees itself.

Exemplified in a blown Bladder. 219. But to make a more exact Experiment to this Purpose, we took a small, light, and thin metalline Bell; and plunged it into a Bason of Water, so that it carried down along with it the Air contained in its Cavity, to the bottom of the Vessel; where we had first placed a little Ball, which the Cavity of the Bell was to fall upon. When this Ball was little in Proportion to the Cavity of the Bell, the Air shrunk itself into a less Compass, without escaping; but if the Ball was so large, that the Air could not freely yield, the Air would then, as being impatient of

¹ Here we may observe the proper Use of Calculation, or Mathematics, in Physics.

^m See Sir Isaac Newton's *Optics*; particularly the Queries at the End thereof.

of a greater Pressure, raise up the Bell, on one side, and ascend in Bubblesⁿ.

220. Again; to try what Degree of Extension Air is capable of, we took a Glass-Egg, with a small Orifice at one End thereof; and by strong Suction drew out the Air; then immediately stopping the Orifice with the Finger, we plunged the Glass in Water; where the Finger being removed, the Air that was stretched and dilated by the Suction, now endeavouring to contract itself; (so that if the Glass had not been plunged in Water, it would have drawn in the external Air with a hissing Noise;) it drew in such a Quantity of Water, as sufficed to recover the remaining Air to its former Bulk or Dimension^o.

221. And it is certain, that pneumatical, or rare Bodies, such as the Air, will suffer a remarkable Contraction; but that tangible Bodies, such as Water, suffer Compression with much greater Difficulty, and in a less Degree. What this Degree might be, we attempted to discover by the following Experiment.

222. We caused a hollow and strong Globe of Lead to be formed, capable of containing two Wine Pints; and having made a Hole therein, we fill'd the Globe with Water; then solder'd up the Orifice with Lead; and now beat the Sides of the Globe flat out with a large Hammer: whence the Water was of necessity contracted; because a Sphere is the Figure of largest Capacity. And when hammering was of no farther Service, in making the Water shrink; we put the Lead Vessel into a Press, and squeezed it; till at length the Water forced itself thro' the solid Lead; and stood upon its Surface, like a Dew. We afterwards computed into how much less Space the Water was driven, by this violent Pressure^p.

223. But solid, dry, or more compact Bodies, as Stones, Wood, and Metals, sustain a much less, and almost imperceptible Compression, and Extension; and either release themselves by breaking, moving, squeezing out, or other Evasions; as appears in the bending of Wood, or Metal; in Spring-Clocks, or Watches; in Projectiles, Hammering, and numerous other Motions.

224. But all these Particulars, together with their Measures, are to be discover'd and set down, in the *Enquiry into Nature*, either in the Way of certain Calculation, Estimation, or Comparison; as the Case will admit.

^a The Design was here, to estimate the Force wherewith Air resists its own Condensation, or endeavour to escape. See Mr. Boyle's *Pneumatical Experiments*; particularly *Abridgm.* Vol. II. p. 670--672.

^b See Mr. Boyle's Works, *Abridgm.* Vol. II. p. 414.

^c See the Experiments of the *Academia del Cimento*; and Mr. Boyle's Works, *Abridgm.* Vol. I. p. 628, 629. Vol. II. p. 290, 666, 703, &c.

APHORISM XLVI.

(22) *Instances of the Course.* 225. In the twenty-second Place, among our *Prerogative Instances*, come *Instances of the Course*, or *Stage*; which we also sometimes call *Hydrometrical Instances*^a; deriving the Term from the Hour-Glasses of the Ancients, wherein they used Water instead of Sand. These Instances measure Nature by Moments of Time^b, as the *Instances of the Staff*^c measure them by Degrees of Space. For all Motions, or natural Actions, are perform'd in Time; one indeed swifter, and another slower; but all in certain Moments well known to Nature. Even those Actions which seem suddenly performed, or in the twinkling of an Eye, as we phrase it, are yet found to differ in Time, as to more or less.

Actions perform'd in different Times.

Exemplified in many Particulars.

226. And, first, we see that the Revolutions or Returns of the Celestial Bodies are performed in certain Times or Periods; so likewise is the Flux and Reflux of the Sea. The Descent of heavy Bodies towards the Earth, and the Ascent of light Bodies towards the Heavens, is perform'd in certain Moments; according to the Nature of the Body, and the Medium it moves in. The Motions of a Ship, in sailing; of a Horse, or other Creature, in running; of a Projectile, in flying, &c. are all, in like manner, performed in certain Times, measurable in the Amount or Result. And, with regard to Heat, we see that Boys, in the Winter, will wash their Hands in the Flame of a common Fire, without burning themselves; and, in the way of Sport, others will, by a nimble and equable Motion, turn Glasses of Wine, or Water, upside-down, and recover them again, without spilling: and there are many Particulars of the same Kind.

In Sound.

227. So, likewise, some Compressions, Dilatations, and Eruptions, or Explosions of Bodies, happen swifter, and others slower, according to the Nature of the Body, and the Motion; but they happen in certain Moments of Time. Thus, in the joint Explosion of several large Cannons, which may be heard sometimes to the Distance of thirty Miles, the Report is first audible to those near the Place, where the Discharge is made; and afterwards to those who are farther off^d.

And Vision.

228. And in Vision, where the Action is exceeding swift, 'tis plain, that certain Moments of Time are required to its Performance: as is plain from hence, that Bodies are rendered invisible through too great a Velocity of Motion; as, in the Discharge of a Bullet from a Gun; where the Ball flies too swift to have its Impression received by the Eye.

229. And,

^a As if it were Instances of the *Time-Keeper*, or *Hour-Glass*.

^b See above, *Apb.* 44.

^c See above, *Apb.* 45.

^d See Mr. *Whiston's* Second Edition of his Essay upon the *Longitude*; and Dr. *Derham's* Paper upon the *Motion of Sounds*, in the *Philosophical Transactions*, N^o 313.

229. And, upon comparing this with the like Cases, we have sometimes entertain'd a strange Suspicion; *viz.* whether the Stars of a clear Sky be seen by us at the precise Time they really exist, or rather somewhat later; and, whether there be not, with regard to the Sight of the Heavens, a true and apparent Time, as well as a true Place, and apparent Place; which is observed by Astronomers in the Parallaxes. For it seems incredible, that the Rays of the celestial Bodies should instantly travel such an immense Distance to the Sight; and not rather take up some considerable Time in the Journey. ^{*The Motion of Light, from the fixed Stars,*}

230. But this Suspicion, as to any great Interval betwixt the real and apparent Time, afterwards vanish'd; upon considering that infinite Loss and Diminution of Quantity, as to Sight, between the real Body of a Star, and the apparent Object; which Difference is caused by the Distance; and, at the same time, considering to what a Distance Objects that are barely white may, of a sudden, be seen here below; amounting to sixty Miles at the least^u: for there is no question, but that the Light of the celestial Bodies has not only the vivid Strength of Whiteness; but also vastly exceeds the Light of Flame, as we find Flame here, in Power and Strength of Radiancy. Nay, that immense Velocity where-with gross Matter moves, in the diurnal Rotation, renders this wonderfully swift Motion of the Rays of Light, from the Fixed Stars, more probable. But what has the greatest Weight with me, is this; that if there should here be any considerable Space of Time between Reality and Sight; or the Existence of the Object, and its being seen; it must then happen, that the Sight would be frequently intercepted and confounded by Clouds, arising in the mean time; or by the like Disturbances in the Medium. And thus much for the *simple Mensuration of Time*. ^{*Is extremely swift.*}

231. The Measure of Motions and Actions is not, however, to be sought only simply; but much rather comparatively: this being a Thing of excellent Use; and having regard to very many Particulars. We find, that the Flash of a great Gun is seen before the Sound is heard; altho' it is certain that the Bullet must strike the Air, before the Flame, which was behind it, could get out; and that this must happen from a greater Velocity in the Motion of Light, than in the Motion of Sound. We find also, that visible Objects are sooner received than let go by the Sight; whence it is that the Strings of a musical Instrument struck with the Finger, appear double, or treble, in the Vibration; *viz.* because a new Object is received before the other is discharged: and, for the same Reason, Rings twirling upon an Axis seem Spheres; and a lighted Flambeau, carried hastily by Night, appears tail'd, like a Comet. ^{*The Measures of Motions and Actions, to be found comparatively. Motions that differ comparatively.*}

^u See this Time computed by *M. Huygens de la Lumiere*, p. 8 and 9. See also Sir *Isaac Newton* upon the Subject; and compare them both with the Papers of *M. Maraldi* in the *French Memoirs*, Ann. 1707.

^v See, again, Mr. *Whiston's* Essay upon the Longitude.

Whence Galileo accounted for the Tides.

232. And, from this Foundation of the Inequality of Motion in point of Velocity, *Galileo* imagin'd the Cause of the Flux and Reflux of the Sea to be from the Earth's revolving with a greater Velocity than the Waters: whence the Waters gathering into a Heap upwards, afterwards sunk down by degrees; as we see in a Vessel of Water briskly revolved. But this Solution he invented barely upon Supposition, and not upon Proof, of the Earth's Motion; and also without being well informed of the sexhorary Motion^{*} of the Sea.

The Use of the comparative Measure of Motions, exemplified in Powder-Mines.

233. But we have an eminent Example of the comparative Measure of Motion, and at the same time of its remarkable Use, in the Business of Powder-Mines; wherein vast Masses of Earth, Piles of Buildings, &c. are overturn'd, and toss'd into the Air with a small Quantity of Gunpowder. The Cause whereof is, doubtless, this; that the Motion of Dilatation in the Powder, which is the impelling Force, is many Degrees swifter than the Motion of Gravity, which makes the Resistance; so that the prevailing Motion is perform'd, before the opposite Motion begins: whilst, at first, there was a kind of Neutrality, or want of Resistance. And hence, in all Projectiles, it is not so much the strong, as the sharp and quick Stroke, or Percussion, that carries the Body farthest. Nor was it possible that a small Quantity of Spirit in Animals, especially in those so bulky as the Elephant, or the Whale, should move, and manage so great a Mass of Matter; but for the Velocity of the Motion of the Spirit; and the Inability of the corporeal Mass to resist.

This the Foundation of Magical Instances.

234. And this is one of the principal Foundations of the *Magical Instances*, which we shall soon consider^y; wherein a small Quantity of Matter overpowers and subdues a much greater: that is, where there may be a Pre-occupation, or Anticipation of Motions, by the Velocity of one, before another is ready^z.

The Case to be regarded in all natural Actions.

235. Lastly, this Business of Anticipation and Subsequence, should be observed in all natural Actions. Thus in the Infusion of Rhubarb, the purgative Virtue is drawn out first; and the astringent Virtue afterwards^a. And something of the like kind we have found upon infusing Violets in Vinegar^b; where the sweet and delicate Odour of the Flowers is first received; and afterwards the more earthy Part; which confounds the Odour: therefore, if Violets be infused for a whole Day, their Smell is obtain'd much fainter, than if they were infused only for a Quarter of an Hour, and then taken out. And because Violets contain but little odoriferous Spirit, if fresh ones be infused in the same Liquor, every Quarter of an Hour, for six Times; the Tincture, or Infusion, will become so rich in the Space of an Hour and an half, as to continue, for

2

a whole

^{*} See Vol. III. p. 624.

^y See below, *App.* 51.

^z This deserves to be carefully consider'd and remember'd; for many extraordinary Operations, and Cases of Practice, depend upon it.

^a See the *Sylva Sylvarum* under the Article *Infusion*.

^b See the Place last cited.

a whole Year, of an exceeding grateful Odour, not inferior to the Flowers themselves. But it must be observed, that the Odour does not come to collect its full Strength, till a Month after the Infusion is made. And the Business of Distillation affords numerous remarkable Examples to the same Purpose.

APHORISM XLVII.

236. In the *twenty-third* Place, among *Prerogative Instances*, come *In- (23.) Instances* of *Quantity*; which we also call the *Doses of Nature*^c: borrowing of *Quantity*, the Expression from Medicine. These are such *Instances* as measure Vir- or *Doses of* Nature. tues by the Quantities of Bodies; and indicate what the Quantity of a Body contributes to the Quantity of Virtue.

337. And, first, there are certain Virtues subsisting only in a *Cosmical Exemplified in* Quantity; that is, such a Quantity as has a Consent with the Configuration various *Parti-* and Structure of the Universe. Thus the whole Body of the Earth, culars. unmoved suppose in its Whole, does not fall downwards, tho' its Parts do: the Waters ebb and flow in the Sea, but not in Rivers; unless where they communicate with the Sea: and almost all particular Virtues operate in proportion, as the Body is bigger or less. Large Collections of Water do not easily corrupt; as small ones do. New Wines and Drinks ripen quicker, or become sooner potable, when contained in small Vessels, than when in large ones. If a Plant be added to a large Proportion of Liquor, it makes an Infusion rather than a Tincture; but if to a less, it makes a Tincture rather than an Infusion. So, with regard to the human Body, bathing is one Thing, but sprinkling another. And thus the finest Dews never fall in the Air, but are dissipated and incorporated with it. And we see in breathing upon polish'd Gems, that the small Quantity of Moisture thus left upon their Surface, is presently licked up by the Air; as a light Cloud, or Mist, is dissipated by the Wind. Again, a Piece of a Loadstone will not attract so much Iron as the whole Loadstone would do.

238. There are also Virtues, wherein Smallness of Quantity has the *Smallness of* greatest Effect; as a sharp Point penetrates easier than a blunt one; *Quantity has* and as the angular Point of a Diamond cuts Glass: with other Examples *sometimes the* of the like kind. *greatest Effect.*

239. But we are not here to dwell upon Indefinites; but should enquire *The Measures* into the Proportions of the Quantity of a Body, with regard to the *of the Virtues* Measure of its Virtue: for one might easily imagine, that the Propor- in each Body, tions of Quantity corresponded to the Proportions of Virtue; as that a *to be particu-* leaden Bullet of two Ounces should fall twice as swift as another of one larly sought. Ounce; which is absolutely false. Nor do the same, but very different, Proportions, obtain in all kinds of Virtues: and, therefore, these Measures

^c See above, *Aph. 44.*

tures must be derived from Experiments, and Things themselves; and not from Probabilities, or Conjectures.

The Doses of Nature to be subjoin'd in every Enquiry.

240. Lastly; in every natural Enquiry, the Quantity of the Body required to produce any Effect must be set down; as the Dose: and the Cautions, with regard to Quantity, either in Excess or Defect, continually interspers'd.

APHORISM XLVIII.

(24.) Instances of Reluctance.

241. In the *twenty-fourth* Place come *Instances of Reluctance*; which we also call by the Name of *Prevailing Instances*; that is, such as shew the Predominancy, or Subjection of Virtues to one anothe; or which of them is the stronger, and prevails; and which the weaker, and submits: for the Motions and Struggles of Bodies are no less compounded, recom-pounded, and complicate, than Bodies themselves. We will, therefore, first lay down the principal Species of *Motions*, or *active Virtues*; that their Comparison, in Point of Strength, may be the clearer; and thence the *Instances of Reluctance* and *Prevalence*, be the better known and designed.

Belong to all the Species of Motion.

Motions divided and distinguished into (1.) the Motion of Resistance.

242. The *first Motion* may be the Motion of *Resistance in Matter*, or the Motion that resides in all the Parts thereof, and will not suffer it to be any way annihilated; so that no Force of Fire, no Weight, or Depression, no Violence, no length of Time, or Continuance of Duration, can ever possibly reduce any the least Particle of Matter to nothing; but it will still continue something; possess a certain Space; and to whatever Necessity it be reduced, free itself, either by changing its Form or Place; or, if it cannot do that, it will continue as it was; so that the Time shall never come, when it is nothing, or has no Existence. And of this Motion we need produce no Examples, because it is universal, or exists in all Bodies^d.

(2.) The Motion of Connection.

243. Let the *second Motion* be that we term *Motion of Connection*; whereby Bodies suffer not themselves to be divided, or separated from others, on account of the mutual Contact and Connection they affect: which is a Motion call'd by the Schools, the Motion preventive of Vacuity; as when Water is forced upwards by Suction, or by the Pump; or when the Flesh is raised by Cupping-Glasses; or, as when Water runs thro' a Siphon; with numerous other Examples of the same kind^e.

(3.) The Motion of Liberty.

244. Let the *third Motion* be what we call *Motion of Liberty*, or *Freeing Motion*; whereby Bodies endeavour to ease and free themselves from any preternatural Pressure or Tension; or restore themselves to the Dimensions agreeable to their own Natures. And of this Motion also the Examples are numerous. Thus Water endeavours to free itself from Pres-sure

^d See the *Author's History of Condensation and Rarification*, Vol. III.

^e Let it be considered whether all these Motions are justly explained by the Weight, Spring, or Pressure of the Air.

sure in the Action of Sailing, and Rowing; the Air, in the Action of Flying, and in the Undulations of the Winds; the Springs in Watches; compress'd Air in Pot-Guns, which forces out the Pellet, &c.

245. And, for this Motion of Liberty in the Case of *Tension*, we see, *Its Phenomena in Tension.* the Air frees itself therefrom, when it remains after Suction in Glass-Eggs¹; we see it also in Strings, Leather, Cloth, &c. which restore themselves after *Tension*; unless where they remained so long stretch'd, as to have their Motion of Liberty subdued. This Motion is unscientifically called, by the Schools, the Motion of the *Elementary Forms*: for it does not only belong to Air, Water, and Flame; but to all the Diversities of consistent Bodies; as Wood, Iron, Lead, Cloth, Skins, &c. each Body having its own Measure of Extent or Dimension, from whence it is with difficulty stretched to any considerable Distance².

246. But as this *Motion of Liberty* is, of all others, the most obvious; *This Motion* and also extremely general; it requires to be well and clearly distinguished: for some very inadvertently confound it with the *Motion of Resistance*, and the *Motion of Connection*. Thus when, by this Motion, Matter frees itself from Pressure, they confound it with the *Motion of Resistance*; and when Matter frees itself from Tension, they confound it with the *Motion of Connection*; as if compressed Bodies yielded or dilated themselves only to prevent a Penetration of Dimensions; and as if, when stretched, they restored, or contracted themselves, to prevent a *Vacuum*: whereas, if compress'd Air were to become as dense as Water; or Wood as dense as Stone; there would be no danger of a Penetration of Dimensions; even tho' these Bodies could be much farther compressed than they any way admit of. So likewise, if Water were to be dilated to the same Degree of Rarification with Air; or Stone to the same Degree of Rarification with Wood; there is no Necessity that a *Vacuum* should ensue; even tho' these Bodies could be extended much farther than their Natures any way allow³. And therefore, the Case is not brought to a Penetration of Dimensions, and Vacuity, except in the utmost Limits of Condensation and Rarification: whereas these Motions stop far short of those Limits; as being no more than Appetites which Bodies have of continuing themselves in their own Consistencies, or Dimensions; and not suddenly departing from them, unless altered by gentle Means, and by Consent.

247. But it is much more necessary, as being a Thing of great Consequence, to observe that violent Motion, as 'tis called, is no other than this very *Motion of Liberty*, tending from Compression to Relaxation. *Violent Motion, the Motion of Liberty.* For in all simple Protrusion, or Flight through the Air, there is no Tendency to Motion, or Change of Place, before the Parts of the Body suffer preter-

¹ See above, App. 45. §. 220.

² See the *History of Condensation and Rarification*, passim; and the Article *Motion*, in the *Syst. Natur.*

³ See the Author's *History of Condensation and Rarification*, Vol. III.

preternaturally, and are compressed by the impelling Force; whence it is that some Parts successively pressing against the rest, the whole Body is driven off, or protruded; and not only in a progressive, but at the same time, in a rotatory or revolating Motion; so as that by this Means also, the Parts may free themselves, or suffer more equally¹.

(4.) The Motion of Extension.

248. Let the *fourth* Motion be the *Motion of Extension*; which is, in some measure, the Opposite to the *Motion of Liberty*: for in the Motion of Liberty, Bodies avoid, dread, and fly from a new Dimension, or a new Degree of Dilatation, or Contraction; and endeavour, with all their Force, to recover their former State: whereas, on the contrary, in the *Motion of Extension*, Bodies affect a new Dimension; and sometimes willingly and hastily aspire to it, even with a violent Endeavour; as we see in Gunpowder. And the most powerful, or at least the most common, tho' not the only Instruments of this Motion, are *Heat* and *Cold*.

Exemplified in Air.

249. For Example, if Air be dilated by *Tension*, as it is in Suction, it has a great Appetite of restoring itself; but if Heat be applied thereto, it, on the contrary, tends to dilate, and occupy a new Dimension; and goes willingly over thereto, as into a new State: and after some Continuance of this Dilatation, it has no great Appetite to return, unless solicited thereto by the Application of Cold; which is no spontaneous Return, but a repeated Change.

And Water.

250. So likewise Water, when compressed, resists, and endeavours, as it were, to enlarge itself; but upon the Continuance of intense Cold, it spontaneously and readily concretes into Ice: and if the Cold continues very long, without Interruption from any Warmth; as perhaps sometimes happens in the deeper Caverns; the Water is turned into Crystal; or Matter approaching thereto; and never recovers the Nature of Water again^k.

(5.) The Motion of Continuity.

251. Let the *fifth* Motion be the *Motion of Continuity*; by which we do not mean a simple and primary Continuation with any other Body; for that is *Motion of Connection*; but of Self-Continuation in a certain Body. For, 'tis manifest, that all Bodies resist a Solution of their Continuity; some indeed more, and others less; but all of them in a Degree. And, as in hard Bodies, such as Steel and Glass, the Resistance of Discontinuation is very strong; so likewise in Liquors, where this Motion seems either to cease, or at least to languish, yet it is not absolutely wanting: but it plainly resides in them, as it were, in the lowest Degree, and discovers itself by numerous Experiments; as particularly in Bubbles; the Sphericity of Drops; the fine Threads of Isicles; in the drawing out of glutinous Bodies, &c. But this Appetite principally appears, when a Discontinuation is attempted in the small Parts of Bodies: Thus, in beating the

¹ See Vol. III. p. 606.

^k See the *Sylva Sylvarum*, under the Article *Transmutation*. See also Mr. Boyle upon the *Origin of Gems*.

the Mortar, after the Pulverization is carried to a certain Degree, the Pestel operates no further upon the Matter, to reduce it finer. And so Water will not enter into fine Cracks, or Fissures; nor Air, tho' so extremely subtil, readily insinuate into the Pores of solid Vessels.

252. Let the *sixth Motion* be that we call *Motion of Acquisition*, or *Motion of Want*; by which, Bodies, when placed among others that are heterogeneous to, and as it were at Enmity with them, if they find an opportunity of flying and avoiding these, and applying themselves to others nearer related, tho' without any close or intimate Consent, yet they presently embrace the Occasion; and chuse the latter before the former, as it were in the Way of *Acquisition*; or as if they stood in *want* of such Bodies; from whence we derive the Name.

(6.) *The Motion of Acquisition.*

253. For Example, Leaf-Gold, or any other Metal in the Leaf, delights not in the ambient Air; and therefore if it touches any tangible or gross Body, as the Finger, Paper, &c. it presently sticks thereto, and is not easily separated again.

Exemplified in Leaf-Gold.

254. So Paper, Cloth, &c. have no great Agreement with the Air residing or lodged in the Pores thereof; and therefore, such Bodies readily imbibe Water, or other Moisture, and reject or throw out the Air. So if Sugar, or Sponge, be dipt only at one end in Water, or Wine; whilst the other Part remains far above the Surface of the Liquor; yet these Bodies gradually attract the Wine or Water upwards¹.

Spongy Bodies attracting Moisture.

255. Hence we may derive an excellent Rule for the opening and dissolving of Bodies: for, (not to meddle at present with Corrosive Menstruums, which force themselves a Passage) if a *suitable Body can be found* that has a greater Agreement, or Consent, with any Solid, than the Matter has wherewith such a Solid is mixed, as it were by Necessity²; the Solid will immediately open, and relax itself, to receive the latter, and exclude and reject the former³. Nor does this *Motion of Acquisition* operate only in immediate Contact: For the *electrical Virtue*, (about which Dr. Gilbert and others have invented such Fables) is an Appetite excited by a gentle Friction; and not well agreeing with, or enduring the Air; but affects or covets other tangible Bodies, if it find them near at hand⁴.

A Rule for dissolving Bodies.

Elasticity, what.

256. Let the *seventh Motion* be that we call the *Motion of the greater Congregation*, whereby Bodies are carried to the Masses of their own Natures; heavy ones, to the Globe of the Earth; and light ones to the surrounding Heavens. This, by the Schools, from a superficial Conside-

(7.) *Motion of the greater Congregation.*

¹ See the *Sylva Sylvarum*, under the Article *Attraction*.

² The *Instances* hereof are numerous in Chemistry, as in adding Oil of Vitriol to Nitre, Sea-Salt, &c. when the Oil of Vitriol seizes upon the earthy Part, and sets the Spirit of Nitre, &c. free.

³ See the Article *Attraction*, in the *Sylva Sylvarum*. See also the Chapter of *Menstruums* in Barbaque's *Chemistry*; and M. Geoffroy's *Table* of the different Relations observed in Chemistry, betwixt different Bodies, in the *French Memoirs*. An. 1718.

⁴ See Mr. Boyle of *Electricity*. See also the Author's *Sylva Sylvarum*, under the Article *Elasticity*.

ration, is called *Natural Motion*; because they found nothing that was externally visible to give it; and therefore imagined it to reside naturally, or to be innate in Things themselves: or again, perhaps, because it is a ceaseless, or continual Motion. And no wonder, since the Heavens and the Earth are always at hand; whereas the Causes and Origins of many other Motions, are sometimes present, and sometimes absent: and hence they laid this down, for a constant and proper Motion; and the others for acquired ones.

Is languid.

257. But, in reality, this Motion is weak, and languid; as yielding and submitting to other Motions, so long as they continue to operate; unless the Bulk of the Body be considerable. And altho' this Motion has so possess'd the Thoughts of Men, as almost to have stifled or superseded the rest; yet it is very little that they know thereof; but run into many Errors about it¹.

(8.) *The Motion of the lesser Congregation.*

258. Let the *eighth Motion* be the *Motion of the lesser Congregation*, whereby the homogeneous Parts in any one Body separate themselves from the heterogeneous, or collect together; and whereby also distinct and entire Bodies, from a Similitude of Substance, embrace, cherish, and sometimes collect and attract each other, and come together from a certain Distance: as when in Milk, the Cream, after some Continuance, floats a-top; and in Wine, the Lees sink to the Bottom. Nor does it happen only through the Motion of Gravity and Levity, that some Parts should rise to the top, and others sink to the bottom; but much more through an Appetite, that homogeneous Bodies have of meeting and uniting together².

Differs from the Motion of Want.

259. This Motion differs from the *Motion of Want*³, in two respects; the one, that in the *Motion of Want* there is a *Stimulus*, or Incitement of a malignant and contrary Nature; whereas in this Motion, when all Obstacles and Impediments are removed, the Parts unite by Congruity or Affection; tho' there be no foreign Nature present, to cause an Aversion. The other respect is, that the Union here proves closer, and, as it were, stronger, with greater Appetite or Choice. For, in the former, if the Thing at Enmity be avoided, the Bodies meet, tho' they are not greatly related; but in the latter, Substances come together, as if perfectly related by Similitude, and make, as it were, one Whole. And this Motion resides in all compound Bodies; and would easily shew itself in each, if it were not bound down and restrained, by other Appetites, and Necessities of Bodies, which disturb and hinder this Union⁴.

160. This

¹ See the Article *Motion* in the *Sylva Sylvarum*.

² See above, §. 255.

³ See above, §. 252.

⁴ These Appetites, or Laws of Motion, require the strictest Regard; as being the Things whereon all the Actions and Passions, or all the Phenomena and Effects, of Bodies, principally depend. See below, *Apph.* 50.

260. This Motion is, generally, bound down three Ways; viz. (1.) by *Subdued thro'* the Inactivity of Bodies; (2.) by the Check of a predominating Body; *Ways; viz. first* and, (3.) by external Motion. As to the first, 'tis certain, that tangible *by Inactivity.* Bodies have a kind of Inactivity or Sluggishness, in a greater or less Degree, whereby they dread or resist local Motion; so that, unless excited, they tend rather to continue in their present State, than to move or change for a better^{*}.

261. This Sluggishness is taken off by three Means; viz. (1.) either *Which is set* by Heat; (2.) some eminent Virtue of a Body related: or, (3.) by a *free, (1.) by* brisk and powerful Motion. And, *first,* as to the *Assistance of Heat*; it hence arises, that Heat is said to separate heterogeneous, and congregate homogeneous Bodies; which is a Definition of the *Peripatetics*, justly derided by Dr. Gilbert; as being like the defining a Man to be a Thing that sows Corn, and plants Vineyards: a Definition formed only upon particular Effects. But the former Definition is still more faulty, because the Effects, whatever they are, proceed not directly from the Property of Heat; but only by Accident: for Cold will do the same, as we shall shew hereafter[†]; and is really owing to an Appetite which the homogeneous Parts have of coming together; the Heat only assisting to dispel the Sluggishness that before subdued, or bound down this Appetite.

262. *Secondly,* As to the *Assistance of the Virtue communicated by a Body* (2.) *By the* related; this appears surprizingly in the armed Loadstone, which excites *Virtue of a* in Iron a Virtue of detaining Iron, by similitude of Substance; the Vir- *Body related.* tue of the Magnet here dispelling the Sluggishness of the Iron.

263. And, *Thirdly,* for the *Assistance of Motion*; we see it in Arrows (3.) *And by* of Wood, with wooden Points, which penetrate farther into Wood than *brisk Motion.* if they were tipped with Iron; through a Similitude of Substance; the Inactivity of the Wood being shook off by the Velocity of the Motion, as we before observed, under *Clandestine Instances*[‡].

264. The binding of the Motion of the lesser Congregation, by *The Motion of* the Check of a predominating Body, appears in the Resolution of Blood, *the lesser Con-* and Urine, by Cold: for so long as these Fluids continue full of that *gregation sub-* active Spirit, which directs, governs and subdues their Parts, of every *dued, second-* Kind, as Lord of the Whole; so long the different Parts do not collect *ly, by a Pre-* together; by reason of the Check upon them: but after this Spirit is eva- *Body.* porated, or deaden'd, by Cold; then the Parts being relaxed, and unbridled, severally come together; according to their natural Appetites. And hence it is that all Bodies, containing a sharp Spirit, as Salts, and

^{*} This seems to be what is now called, by Mathematical Writers, the *Vis Inertia* of Matter. See also hereafter, §. 297 and 300.

[†] As particularly, in the freezing of Brandy, Wine, saline Liquors, &c. See below, App. 50.

[‡] See above, App. 25. See also the *Sylva Sylvarum*, under the Article *Attraction*.

the like, continue unseparated^a; viz. by reason of the permanent and durable Check of the presiding, or over-ruling Spirit.

And, thirdly,
by external
Motion.

265. We have an eminent Example of *the Motion of the lesser Congregation* being subdued by *external Motion*, in the Agitations of Bodies, which are preventive of Putrefaction: for all Putrefaction depends upon the uniting of the homogeneous Parts; whence there gradually ensues a Corruption or Destruction of the former State, or Appearance, and the Introduction of a new one: for a Solution of the old State must precede Putrefaction, which paves the Way to the Generation of a new Thing. And this Solution is the Collection of the homogeneous Parts together: and if not obstructed, the Solution is simple; but if various Obstacles intervene, Putrefaction ensues; that is the Rudiments of a new Generation. But if a frequent Agitation be made, by external Motion; then the Motion of Union, which is here delicate, soft, and requires Rest from without, becomes disturb'd, and ceases; as we find by numerous Examples.

Exemplified.

266. Thus the continual Agitation, or Running of Waters, prevents their putrefying: Winds purge and purify a pestilential Air: Corn, by being turned and agitated, is kept sound in the Granary: and, in short, all Things that are kept in Agitation from without, do not easily putrefy from within^c.

In the Con-
tractions of
dry Bodies.

267. We must not here omit that Conjunction of the Parts of Bodies, from whence Hardness and Dryness principally proceed: for after the Spirit, or Moisture turn'd into Spirit, is fled, from any porous Body; as Wood, Bone, Parchment, &c. the grosser Parts forcibly contract, and come together; whereupon Hardness, or Dryness ensues: which we judge not to proceed so much from the *Motion of Connection*, as from the Motion, or Appetite, of Amity, or Union.

Motions meet-
ing at a Di-
stance.

268. As for the Motions that meet from a Distance, these are extraordinary and uncommon; yet may be found in more Things than have been usually observed. We find Examples hereof in Bubbles, that rush into and dissolve one another; in Medicines that attract or drain off Humours by Similitude of Substance^d; two Violins in Unison with each other, when the one being struck, the other will move, &c. We likewise suspect this Motion prevails in the Spirits of Animals; tho' it remains perfectly unknown. 'Tis doubtless exerted in the Loadstone, and animated Iron.

Four distinct
Motions of the
Loadstone.

269. But with regard to the Loadstone, there are four distinct Motions, Virtues, or Operations, that should not be confounded; tho' thro' Admiration and Astonishment, Men have blended them together. The first is, the Attraction betwixt Magnet and Magnet; Iron and the Magnet;

^a Viz. Unresolved into their different Principles, or heterogeneous Parts.

^b See the *Sylva Sylvarum*, under the Article *Putrefaction*.

^c Viz. As Rhubarb does the Bile, &c.

Magnet; or animated Iron and Iron. The *second* is, the Verticity of the touch'd Needle, or its Property of pointing North and South; together with its Variation, or Declination from that Direction. The *third* is the Virtue of penetrating Gold, Glass, Stone, &c. And the *fourth* is, the Communication of Virtue from the Stone to Iron, and from Iron to Iron, without a Communication of Substance*. But, at present, we speak only of the first of these Virtues; that of Approach, or Attraction.

270. There is also a remarkable Motion of Attraction between Quick-silver and Gold; so that Gold will attract Quicksilver, tho' it be made up into Ointments. And those that work much among the Vapours of Quicksilver, commonly hold a Piece of Gold in their Mouths, to collect the mercurial Effluvia; which would otherwise penetrate the Skull, and Bones of the Body, &c. and the Gold so employ'd, soon after becomes white*. And so much for the Motion of the lesser Congregation.

*The Attraction
betwixt
Quicksilver
and Gold.*

271. Let the *ninth Motion* be *Magnetical Motion*, which, tho' a Thing of the same Kind with the *Motion of the lesser Congregation*; yet, if it operate to great Distances, and upon large Masses of Matter, it deserves a separate Enquiry; especially if it neither, like most other Motions, begins with Contact; nor comes to that at last; as all the Motions of Congregation do; but only raises Bodies, or makes them swell, without any farther Effect. For if the Moon raises the Waters, or makes moist Things swell; or if the Sphere of the fixed Stars attracts the Planets, towards their *Apogees*; or if the Sun attracts *Venus* and *Mercury*, and keeps them always near its Body; these Motions seem not justly to fall under those of the *greater or less Congregation*; but to be certain *middle and imperfect Motions of Assemblage*; that should, therefore, constitute a particular Species.

*(9.) Magneti-
cal Motion, or
the Motion of
Attraction in
large Bodies,*

272. Let the *tenth Motion* be the *Motion of Avoidance*; which is a Motion contrary to that of the *lesser Congregation*; and makes Bodies, by Antipathy†, fly from, and keep off, others, that are disagreeable to them; or separate themselves therefrom; or refuse to mix therewith. For altho' this Motion may seem, in some Cases, to be only an accidental, or a consequential Thing, with respect to the *Motion of the lesser Congregation*; as homogeneous Bodies cannot come together, till such as are heterogeneous be excluded and removed; yet it should be particularly mention'd,

*(10.) Motion
of Avoidance.*

* See the Article *Magnetism*, in the *Sylva Sylvarum*.

† It has been lately question'd, whether, when Persons are salivated by Mercury, a Piece of Gold will be whiten'd, by being held, for several Hours, to any Part of the Body, where no Mercury, from without, is suppos'd to come; or none besides what has pass'd thro' the Course of Circulation, along with the animal Juices.

‡ Let it always be remember'd, that the Author constantly chuses the old Words, where he may use them so as to convey his own Meaning, with any tolerable Advantage. This is the more necessary to be remarked, because Men are extremely apt to take particular Disgusts, as well as particular Likings, to Words and Phrases.

tion'd, and made a Species; because, in many Things, the Appetite of Repulsion seems more capital than the Appetite of Attraction.

*Exemplified in
Tastes and O-
dours.*

273. This Motion appears remarkably in the Excretions of Animal; and no less in the Objects odious to some of the Senses; particularly to the Smell and Taste: for a fetid Odour is so repulsed by the Organ of Smell, that it even causes a Motion of Expulsion, by Consent, in the Mouth of the Stomach^a. A bitter and horrid Taste is so repulsed by the Palate and Throat, as to cause, by Consent, a particular Shake, or Shuddering of the Head.

*In the Anti-
peristasis of
Cold and
Heat.*

274. This Motion of Avoidance has also place in other Things; for it appears in some Kinds of *Antiperistasis*^a. Thus the Cold in the middle Region of the Air, seems to be a Repulsion of the Cold from the Confines of the celestial Bodies: as those great Heats and Burnings, found in subterraneous Places, seem to be a Repulsion of Heat, from the inner Parts of the Earth. For Heat and Cold destroy each other, when their Degrees are small; but when collected into large Masses, or, as it were, into full Armies, they violently repel, and displace each other in the Conflict.

*In odoriferous
Bodies, and
Quicksilver.*

275. 'Tis also reported, that Cinnamon, and other odoriferous Bodies, suspended in a Jakes, or other fetid Place, retain their Scent longer; as thus keeping themselves within, and refusing to mix with Matters of an ill Odour. And Quicksilver, which, of itself, unites into a continued Mass, is, by grinding with a little Spittle, Turpentine, &c. kept asunder; so that its Parts unite not again, by reason of the Aversion they have to the Bodies employ'd; from which, as every way mix'd in among them, they shrink, and shut themselves up; their Appetite of avoiding these Particles interposed, being greater than their Appetite of uniting with their own similar Parts: and this is what they call the *killing of Quicksilver*.

*In Oil and
Water.*

276. So, again, the Reason that Oil will not mix with Water, is not so much owing to their Difference of Gravity, as to their want of Consent: which appears from hence, that Spirit of Wine, tho' lighter than Oil, yet mixes with Water. But the Motion of Avoidance is most remarkable in Nitre, and the like crude Bodies, which fly from Flame; as we find in Gunpowder, Quicksilver, and Gold^b.

*(11.) Motion of
Assimilation.*

277. Let the *eleventh Motion* be the Motion of Assimilation, Motion of Self-Multiplication, or Motion of Simple Generation. By Simple Generation, we do not understand the Generation of entire Bodies; such as Plants, and Animals; but of similar Bodies: so that by this Motion, Bodies convert other Bodies related to them, or, at least, such as are well disposed and prepared to be converted, into their own Substance and Nature.

278. Thus

^a *Viz.* A Retching.

^b See Vol. III. p. 564, 565.

^c *Viz.* Quicksilver confined, and heated; and in the *Aurum Fulminans*. See Vol. III. p. 494, &c.

278. Thus Flame multiplies itself upon unctuous Exhalations, and oily Bodies, and generates new Flame; Air multiplies itself upon Water, and produces new Air; and the vegetable and animal Spirit multiplies itself, or feeds upon the soft, aqueous, and oleaginous Parts, and begets new Spirit; the solid Parts of Plants and living Creatures, as the Leaves, the Flowers, the Flesh, the Bones, &c. are all assimilated from the Juices of the Aliment; and thus beget new Matter, and new Substance upon themselves successively^c. For let no one dream, with Paracelsus, (who appears as if blinded by his Distillations,) ^{Exemplified in the Nutrition and Assimilation of Plants and Animals.} that Nutrition is performed merely by Separation; and that the Eyes, the Nose, the Brain, the Liver, &c. lie concealed in Bread or Food; or that the Roots, the Leaves, and Flowers of Vegetables, are lodged in the Juice of the Earth: for he asserts, that as the Workman, by separating and paring off what is superfluous, from a rude Block of Stone or Wood, educes out of it a Leaf, a Flower, an Eye, or a Nose; so the *Archæus*, that internal Operator of his, produces all the different Limbs, and Parts, out of the Aliment, by Separation and Rejection.

279. But, to leave such trifling; it is certain, that all the Parts, as well similar as organical, in Vegetables and Animals, first attract, with some Election or Choice, nearly the same common, or not very different Juices, for their Aliment; and afterwards assimilate, or convert, them into their own Nature^d. Nor is this Assimilation, or *simple Generation*, performed only in animate Bodies; but inanimate Bodies also partake thereof; as was formerly observed of Flame and Air^e. And even the languid Spirit contain'd in all tangible inanimate Bodies, constantly endeavours to digest the grosser Parts, and turn them into Spirit, to be afterwards discharged; whence proceeds Diminution of Weight, and Dryness, as was formerly observed^f.

280. Nor must we, in the Business of Assimilation, reject that Accretion commonly distinguish'd from Assimilation; as when Clay, mix'd among Stones, concretes, and is turn'd into a stony Matter; or when the Scales of the Teeth are turn'd into a Substance as hard as the Teeth themselves, &c. For we judge, that all Bodies have an Appetite of assimilating, as well as of uniting, what is homogeneous to themselves; but that both Powers are bound down, or suppressed, tho' not in the same manner. All these Ways of binding, and the correspondent ones of loosing, should be diligently enquired after; because they regard the Prolongation of Life, or the Alleviation of old Age^g.

2

281. Lastly,

^c See the *History of Life and Death*, the *History of Winds*, and the *Sylva Sylvarum*, passim.

^d See Vol. II. p. 54.

^e See the *Sylva Sylvarum*, under the Article *Vegetation*.

^f See above, App. 42.

^g See above, App. 40.

^h See the Author's *History of Life and Death*, Vol. III.

The Motion of
Assimilation
regards the
Propagation
of Bodies.

(12.) The Mo-
tion of Exci-
tation.

Wherein it
agrees, and
differs, from
the Motion of
Assimilation.

Exemplified in
Heat.

In the Mag-
net, &c.

(13.) The Mo-
tion of Im-
pression.

Differs from
the two prece-
ding Motions.

281. Lastly, 'tis worth observing, that in the ten preceding Motions, Bodies seem only to affect, or endeavour, the Preservation of their own Natures; but in this eleventh, to endeavour their Propagation.

282. Let the *twelfth Motion* be the *Motion of Excitation*; which seems of the same kind with the *Motion of Assimilation*; as being diffusive, communicative, transitive, and multiplicative, like that; so as generally to agree therewith in the Effect; tho' they differ in the Subject, and Manner of effecting: for the *Motion of Assimilation* proceeds with a kind of Sway, Authority, and Power; as it commands and compels the Matter assimilated, to turn and change into the Matter assimilating; whereas the *Motion of Excitation* proceeds as if it were by Art, Insinuation, and Stealth; thus solliciting and disposing the excited Matter to assume the Nature of the Matter exciting. So, again, the *Motion of Assimilation* multiplies and transforms Bodies and Substances; and thus produces more Flame, more Air, more Spirit, more Flesh, &c. but in the *Motion of Excitation* none but Virtues are multiplied and communicated: whence there is generated more Heat, more Magnetism, more Putrefaction, &c.

283. And this Motion is remarkably found in *Heat* and *Cold*: for Heat does not diffuse itself in heating, by the Communication of the original Heat; but only by exciting the Parts of the Body to that Motion which is the *Form of Heat*; as was mentioned above¹: and, therefore, Heat is much slower, and more difficultly excited in Stone or Metal, than in Air; by reason of the Indisposition and Unfitness of those Bodies to admit of that Motion: whence, possibly, there may lodge in the Bowels of the Earth, Matters which cannot be heated; as being, by a greater Condensation, depriv'd of that Spirit with which this Motion of Excitation generally begins².

284. So the Magnet gives Iron a new Disposition of Parts, and a conformable Motion; whilst itself loses nothing of its Virtue. So likewise Bakers Leaven, Yeast, Rennet, and certain Poisons, respectively excite and sollicit a successive and continued Motion, in the coming of Cheese, the making of Bread, the fermenting of Beer, and in poisoning the human Body; and this not so much by the Power of the exciting Matters, as by the Predisposition and easy yielding of the Bodies excited.

285. Let the *thirteenth Motion* be the *Motion of Impression*; which likewise seems of the same Kind with the *Motion of Assimilation*; and is the most subtile of diffusive Motions: but we think proper to make it a Species, by itself, because of a remarkable Difference it has in respect of the two former. For the *simple Motion of Assimilation* transforms Bodies themselves; so that if what gave the first Motion be removed, it is of no Significance to what follows; for the first lighting up of Flame, or the first Conversion into Air, makes nothing to the succeeding Generation of

¹ See *App.* 13. and 20.

² Consult the *Tables* above laid down, *App.* 11, 12, 13, 18, 20.

of Flame or Air. So, likewise, *Motion of Excitation* remains perfect, for a considerable Time after the first Mover is taken away: as in a heated Body, after what gave the first Heat is removed; in animated Iron, after the Loadstone is laid aside; and in Bread before baking, when the Leaven is taken away. But the *Motion of Impression*, tho' it be diffusive, and transitive, yet seems constantly to depend upon the first Mover; so as if that be taken away, it immediately ceases, and comes to nothing. This Motion is, therefore, performed momentarily, or at least suddenly: for which Reason we call the *Motions of Assimilation and Excitation*, the *Motions of Jupiter's Generation*; because the Generation remains: but this *Motion of Impression*, the *Motion of Saturn's Generation*; because the Offspring is presently devoured and swallowed up. *Depends upon the first Mover.*

286. This Motion shews itself in three Things; viz. (1.) the Rays of *Exemplified in* Light, (2.) the Percussion of Sounds, and (3.) the Communication of *Light, Sound,* magnetical Virtues. For (1.) when Light is removed, Colour and all visible Appearances immediately vanish; and (2.) upon Removal of the first Percussion, and the Concussion of the Body consequent thereto, Sound soon vanishes. For altho' Sounds are to's'd, and agitated, in their Medium, by Winds, as it were by Waves; yet it must be carefully observed, that Sound does not continue so long as the Resounding continues. For when a Bell is struck, the Sound seems to continue a good while after; but it would be very erroneous hence to conceive, that the Sound fluctuated, and hung in the Air, all that while: for the Resounding is not the same, numerical Sound, but a new one; as appears plainly by stopping the Body struck: so if the Bell be strongly compress'd whilst it resounds, and be thus rendered motionless, the Sound instantly ceases, and no more Resounding is heard. So, likewise, in stringed Instruments, if a String be touched, with the Finger, after the first Percussion, the Resounding presently stops. (3.) And, lastly, when *And Magnetism.* the Magnet is removed, the Iron suspended by it presently falls down: but the Moon cannot, by us, be removed from the Sea; nor the Earth from a ponderous Body in falling; and, therefore, no Experiment can, in this respect, be made on them; tho' the Case be, otherwise, the same¹.

287. Let the *fourteenth Motion* be the *Motion of Configuration*, or *Situation*; whereby Bodies seem not to affect coming to, or flying from, one another; but a certain *Position, Situation, and Configuration*, with respect to others. This, indeed, is a very abstruse Motion, and little enquired into: and, in some Cases, it seems to be without a Cause; tho' we judge it not to be really so. *(14.) The Motion of Configuration.*

¹ Sir Isaac Newton attempts to shew, by Calculation, that the Moon, and whole Solar System, may be sensibly affected by the Attraction of the Earth; and conjectures that the Effect will become more sensible hereafter, by causing a great Disturbance in the celestial Motions. See *Newton. Princip. Lib. III.*

*Exemplified in
the Motion of
the Heavens.*

288. Thus, if it should be asked, why the Heavens rather revolve from East to West, than from West to East; or turn upon Poles placed near the North and South, or nearer the Bear, than near Orion, or any other fix'd Star; the Question would appear wild and surprizing; as being supposed a Thing that ought to be received from constant Observation and Experience. And, 'tis true, there are, in Nature, certain ultimate Resorts; and Things without a Cause: but this does not seem to be one of them. For we judge it to proceed from a certain Harmony, and Consent, of the Universe, hitherto unobserved. And if we admit the Motion of the Earth from West to East, the same Question would recur; because the Earth also must move upon certain Poles; but why should these Poles be placed rather where they are, than elsewhere?

*The magnetic
Needle.*

*And the Ar-
rangement of
Concretes.*

289. So, likewise, the Verticity, or the Direction and Variation, of the magnetic Needle, may be referr'd to this *Motion of Configuration*. And there are found in Bodies, both natural and artificial, especially such as are consistent, and not fluid, a certain Disposition and Situation of Parts, as it were in the manner of Threads and Fibres; which Arrangements should be diligently sought after: for without a Discovery thereof, such Bodies cannot be commodiously treated, managed, or wrought^m.

*(15.) The Mo-
tion of Transi-
tion.*

290. Let the *fifteenth Motion* be the *Motion of Transition*, or *Motion of Passage*; whereby the Virtues of Bodies are more or less hinder'd, or promoted, on Account of their Mediums; according to the Nature of the Body, and the Virtue of the Medium: for one Medium suits best with Light, another with Sound, another with Heat and Cold, another with magnetic Virtues, &c. respectively.

*(16.) The Re-
gal, or Politi-
cal Motion.*

291. Let the *sixteenth Motion* be what we call by the Name of *Regal*, or *Political Motion*; whereby the Parts predominating and ruling in any Body, curb, subdue, and regulate the other Parts; and compel them to unite, separate, fix, move, and range themselves, not according to their own Appetites; but as it is conducive to the Well-being of that overruling Part; so as to make a kind of political Government, exercised by the ruling Part, over the Parts in Subjection to it.

*Exemplified in
Spirits.*

292. This Motion principally reigns in the Spirits of Animals, and regulates and tempers all the Motions of the other Parts, so long as itself remains in Vigor. 'Tis also found, in a less Degree, in other Bodies, as was said above of Blood and Urineⁿ; which do not resolve till the Spirit that mix'd and held their Parts together, is evaporated or stified. Nor is this Motion peculiar to Spirits; tho' these govern or pre-
side

^m Thus, for Example, the Diamond is flaky or leafy; and has a Grain, or a perpetual Situation of Plates; so as in this respect to resemble *Talc*, &c. Wood has its Grain, or longitudinal Direction of Fibres, &c. And the Knowledge of those Properties in Bodies, directs the Ways of treating or managing them; as we see in the cutting and polishing of Diamonds, the splitting and planing of Wood, &c.

ⁿ See above, §. 264.

side in most Bodies, by reason of their Velocity and Penetration; but in Bodies more condensed, and not full of a vivid, brisk, Spirit, (such as is found in Quicksilver, and Vitriol,) the gross Parts rather have the Ascendant; so that unless this Yoke, or Obstacle, could, by some means, be shook off, or removed, there are no Hopes of any new Transformations to be wrought in such Bodies.

293. Let no one here imagine, that we forget our immediate Business; and (whereas this Arrangement and Distribution of Motions regards nothing more than the better enquiring into, and discovering their Predominancy, by the *Instances of Reluctance*°;) here treat of this *Predominancy*, among the Motions themselves: for in the Description of this *Regal Motion*, we do not treat of the Predominancy of Motions, or Virtues; but of the *Predominancy of the Parts in Bodies*: this being that Predominancy which constitutes the peculiar Species of *Motion*, at present under Consideration.

294. Let the *seventeenth Motion* be the *Spontaneous Motion of Rotation*; (17.) *Spontaneous Motion of Rotation.* whereby Bodies in Motion, and favourably situated, enjoy their own Nature, follow themselves, and no other Thing; but run, as it were, into their own Embraces. For Bodies seem either to move without any certain End; or perfectly to rest; or else to be carried to a Period, where they may either revolve, or rest according to their Nature. *Motion in general, of three Kinds.* But the Bodies that are favourably situated, if they move at all, move in a Circle; that is, with an eternal, and infinite Motion. The Bodies that are well situated, and yet abhor Motion, are perfectly at rest: but such as are not well situated, move in a strait Line; that is, in the shortest Way, to the Association of Bodies of their own Nature.

295. This *Motion of Rotation* has nine Differences; regarding (1.) the Centre, about which the Motion is performed; (2.) the Poles, with regard to which they move; (3.) the Circumference, in respect to its Distance from the Centre; (4.) the Degree of Velocity; (5.) the Consecution, or Order, of the Motion; as whether from East to West, or West to East, &c. (6.) the Declination from a perfect Circle, by Spirals, farther off, or nearer to the Centre^p; (7.) the Declination from a perfect Circle, by Spirals, farther from, or nearer to the Poles; (8.) a greater or less Distance of the Spirals from one another; (9.) and lastly, the Variation of the Poles themselves, if movable: which Particulars belong not to Rotation, unless it be circular. *Motion of Rotation has nine Differences.*

296. And this Motion, according to common and more settled Opinion, is held to be the proper Motion of the heavenly Bodies. But there is a great Controversy, with regard to this Motion, between certain of the Ancients, as well as the Moderns; who, some of them, attribute Rotation to the Earth. But, perhaps, it were a more proper Subject *Whether the Motion of Rotation be proper to the celestial Bodies.*

° See above, *App.* 48, §. 241.

^p Viz. Their elliptical Motion.

of Controversy, (if the Thing be not already past Dispute,) whether this Motion, supposing the Immobility of the Earth, be limited or contain'd within the Bounds of the Heavens; or rather descends, and becomes communicated to the Air and Waters⁹. But for the rotatory Motion of Projectiles, we refer it to the *Motion of Liberty*¹.

(18.) *The Motion of Trepidation.*

297. Let the *eighteenth Motion* be the *Motion of Trepidation*; whereto, as it is understood by Astronomers, we give no great Credit. But we meet with this Motion, upon seriously searching into the Appetites of natural Bodies: and it seems proper to constitute it a Species by itself. This *Motion* is, as it were, a Motion of eternal Captivity: for where Bodies are not perfectly well placed, or situated, according to their Natures, and yet are not in a perfectly bad State, they perpetually tremble, and prove restless; neither content with their present Situation, nor daring to proceed farther.

Exemplified.

298. This Motion is found in the Hearts and Pulses of Animals; and must necessarily reside in all Bodies that remain in a doubtful State, between Convenience and Inconvenience; so as that when stretched or drawn, they try to free themselves; at which Time they again suffer a Repulsion; and yet are constantly trying.

(19.) *Motion of Indolence.*

299. Let the *nineteenth and last Motion* be that which, tho' it scarce answers to the Name of a Motion, is yet clearly of that Kind; viz. the *Motion of Indolence*; or, as we may otherwise call it, the *Motion of Dreading or Resisting of Motion*².

Exemplified.

300. By this Motion it is that the Earth stands firm in its own Bulk; whilst the Extremities thereof move themselves towards the Middle: not to an imaginary Centre, but to Union. By this Appetite, likewise, all Bodies violently condensed, have an Aversion to Motion; their sole Appetite being not to move: and altho' they should be instigated and incited to Motion, infinite Ways; yet they obstinately preserve their own Nature, as far as possibly they can. But if they are compelled to move; they still constantly endeavour to regain Rest, and recover their former State, so as, if possible, to move no more. And, in this Case indeed, they become agile and swift; and, as if impatient of all Delay, strive with Velocity and Rapidity, to replace themselves. But we have only a partial Image, or imperfect Notion, of this Appetite; because here, with us, no tangible Bodies are condensed to the utmost; on Account of the Influence and Agency of the celestial Bodies upon them³: and besides, they also have some Mixture of Spirits⁴.

301. And

⁹ See Vol. III. p. 620.

¹ See above, §. 244. See also Vol. III. p. 606, 607.

² See above, §. 261.

³ See above, §. 283.

⁴ See the Table for a legitimate Enquiry into Motion, Vol. III. p. 322.

301. And thus we have proposed the Species, or *simple Elements of Mo- Recapitulation*
tions, Appetites, and active Virtues, which are most universal in Nature, *of the Doctrine*
 and under which much natural Knowledge is contained. We deny not *of Motions.*
 that other Species may, perhaps, be added; that these Divisions may
 be better adjusted to the true Divisions or Ramifications of Things; and
 that they may be contracted in Number. But we mean not this of any
 abstract Divisions; as if any one should say, that Bodies desired either
 the Conservation, Exaltation, Propagation or Fruition of their own Na-
 tures; or that the Motion of Things tends to the Conservation and Good,
 either of the Universe, as the *Motions of Resistance, and Connection*; or of
 the larger Universalities, as the *Motion of the greater Congregation, Rota-*
tion, and Indolence; or of *particular Forms*, as in all the rest: for tho' this
 were true; yet it would be Speculative, and of little Use; unless it termi-
 nated in Matter, and Structure, according to the true Divisions, or Lines
 of Nature.

302. In the mean time they will suffice, and be of good Service, in *Use of this Do-*
 examining the Predominancies of Virtue, and searching out the *Instances Arise.*
of Reluctance, which is the present Business. For of the *Motions* here laid
 down, some are absolutely unconquerable; some are more prevailing
 than others, so as to bind, check and dispose those others; some dart
 themselves further out than others; some again excel others, in Point of
 Time and Velocity; and lastly, some cherish, strengthen, enlarge and
 accelerate others.

303. The *Motion of Resistance* is adamantine, and invincible; but whe- *The Motion of*
 ther the *Motion of Connection* be invincible or no, is a Question: for we *Resistance in-*
 determine neither for nor against a *Vacuum*, whether interspersed or col- *vincible; but*
 lective: only conceive it plain, that the Reason why a *Vacuum* was in- *not perhaps*
 troduced, by *Leucippus* and *Democritus*, (*viz.* because without it the same *that of Conne-*
tion.
 Bodies cou'd not possess and fill a greater or lesser Space,) is ill founded:
 because Matter may wrap and unwrap itself in Space, within certain Li-
 mits, without the Interposition of Vacuity. Nor has Air two thou-
 sand times more Vacuity than Gold; as on that Supposition it ought
 to have. And this appears sufficiently from the extremely powerful Vir-
 tues of pneumatical Bodies; (which must otherwise float like fine Dust
 in *Vacuo*;) and from many other Proofs*.

304. But the other *Motions* govern and obey each other, according to *The other Mo-*
 their Proportions of Strength, Quantity, Velocity, Sphere of Activity; *tions govern*
 and also according to the Aids and Impediments they meet with. For *and obey each*
 Example, there are armed Loadstones that will attract, and suspend, sixty *other.*
 times their own Weight of Iron; so much does the *Motion of the lesser Exemplified.*
Congregation prevail over the *Motion of the larger*: but this Motion yields,
 if the Weight be greater. Leather extends to a certain Degree, with-
 out

* See the Author's *History of Condensation and Rarefaction*, *passim*. See also Vol. III.
 p. 610.

out breaking; and so far the *Motion of Continuity* over-rules the *Motion of Tension*; but if the Tension be carried further, the Leather breaks, and the *Motion of Continuation* gives way. Water runs out at a Crack of a certain Size; in which Case, the *Motion of the greater Congregation* prevails over the *Motion of Continuity*: but if the Crack be smaller, the *Motion of the greater Congregation* gives way; and that of *Continuity* prevails. If a Musquet be charged with Sulphur, it will not throw out the Ball; in which Case, the *Motion of the greater Congregation* overcomes the *Motion of Dilatation*: but when the Musquet is charged with Gunpowder, the *Motion of Dilatation* in the Sulphur prevails, by the Assistance of the *Motion of Dilatation*, and of the *Motion* wherewith Nitre flies from Flame. And the like is to be understood of the other Cases. For the *Instances of Reluctance*, which indicate the Predominancy of Virtues, and the Proportions wherein they conquer, and yield, are on all Sides to be sought out, with great Diligence.

*The Manner
and Proportion
wherein
Motions yield,
to be observed.*

205. So, likewise, the Manner and Proportions wherein Motions give way, are to be carefully examined; as whether they yield entirely, or rather resist to a Degree, but are subdued: for in the Bodies among us, there is no such Thing as true and perfect Rest; neither in the Wholes, nor in the Parts; but only to Appearance. And this apparent Rest either proceeds from an *Equilibrium*, or an absolute Predominancy of Motions: by an *Equilibrium*, as in the Balance; which rests on both Sides, when the Weights are equal: by *Predominancy*, as in Siphons, or perforated Watering-Pots; where the Water rests, and is kept from falling through, by the Prevalency of the *Motion of Connection*¹.

*The Resistance
of Motions to
be discovered.*

306. But as we said above², it must be observed, how far these yielding Motions resist; for if any Person should be forcibly bound Hand and Foot, or otherwise detained, notwithstanding all the Struggle he could make; his Resistance is not the less, because it does not prevail. And the State of this Matter, (*viz.* whether the yielding Motion be, as it were, annihilated by the Predominancy; or whether the Resistance be continued, tho' latent, in the Conflict) may perhaps appear from *Concurrence*. For Example; let Trial be made in Shooting, whether a Musquet, or Cannon, fired at its utmost Random, or Point-blank Distance, throws a Bullet more forcibly upwards, where the Percussion is simple; or downwards, where the *Motion of Gravity* concurs, or conspires with the Stroke.

*The Rules of
Predominancy
to be collected.*

307. Lastly, the *Canons*, or Rules of the Predominancies, which occur, should be collected; as for Example, that *the more common the Good which is desired, the stronger the Motion*; and that *the Motion of Connection, which regards the Communion of the Universe, is stronger than the Motion of Gravity, which regards the Communion of Dense Bodies*; again, that the *Ap-*

petites

¹ See above, §. 243.

² §. 305.

petites of a private Good do not generally prevail against the Appetites of a more publick Good, unless in small Quantities. And it were to be wished this also obtained in Civil Affairs.

APHORISM XLIX.

308. Among *Prerogative Instances*, we assign the *twenty-fifth Place* to *(25.) Intimating Instances*; that is, such as hint, or point out, the Advantages or Conveniencies of Mankind: for bare Power and Knowledge only enlarge, but do not enrich human Nature; and therefore such Things as principally appertain to the Uses of Life, are to be selected, or cull'd out from the general Mass of Things. The more proper Place for speaking of these, will be when we treat of *Reducing Knowledge to Practice*. But through the whole Business of *Interpretation*, we constantly, in every particular Enquiry, or upon every Subject, allot a Place for the *Table of human Uses*; or the *Table of Desiderata, Wishes, or Optatives*: for it is a part of Knowledge to enquire, and even to wish discreetly.

APHORISM L.

309. In the *twenty-sixth Place*, among *Prerogative Instances*, come *So- (26.) Sovereign-vereign, or General Instances*; that is, such as regard a Variety of Particulars, and occur frequently: whence they greatly save Trouble, and prevent the Search after new Demonstrations. But for the Instruments themselves, and the particular Managements, the more proper Place to treat of them is, when we come to the *Ways of Practice, and the Method of Experimenting*: for the Things hitherto known and used, in the Exercise of all particular Arts, must be described. But at present we will subjoin a few Generals, with regard thereto; in the way of exemplifying these *Sovereign Instances*.

310. Man, therefore, (besides the Business of simply putting Bodies together, and taking them asunder) operates upon natural Bodies seven principal Ways; viz. (1.) by excluding such Things as might hinder or disturb the Process; (2.) by compressing, extending, agitating, and the like; (3.) by Heat or Cold; (4.) by continuing the Matters in a convenient Place; (5.) by the moderating and governing of Motion; (6.) by particular Consents; (7.) by a seasonable and due Change, Alteration, or Series and Succession, of all the preceding Ways, or at least some of them: *The seven Ways, or Means of Practice.*

311. With

^a Here is an Opening in that Kind of *Perfan Magic*, which the Author has prosecuted farther on another Occasion. See Vol. II. p. 5. Let the several Kinds of Motion, above laid down, be compared with those of Sir Isaac Newton, and the modern *Mathematical Writers*.

^b See Vol. III. p. 17, 18, 19, &c. and the *Sylva Sylvarum*, passim.

^c A Part not gone upon in the *Novum Organum*. See above, Aph. 21.

^d See the Close of the History of Winds, Vol. III. p. 497. and *Condensation and Rarefaction*, p. 571.

^e See the *Sylva Sylvarum* throughout. See also the *de Augment. Scientiarum*, Sect. 12.

*The Instru-
ments and Con-
trivances re-
quired in the
first way; viz.
Containing
Vessels, and
Covers.*

311. With regard to the first Means of Practice; viz. by excluding such Things as might hinder or disturb the Process; the common Air, which is every where at hand, insinuating itself, and the Rays of the Celestial Bodies, cause great Disturbance; and therefore such Things as exclude them, may deservedly be accounted *Sovereign*. And to this belong the Matter and Strength, or Thickness, of the Vessels, wherein the Subject, or Bodies prepared for the Operation, are included; as also the exact Methods of closing up these Vessels, with proper and strong Materials, or with *Philosophical Luting*, as the Chemists call it. So likewise the closing of Vessels, by means of Liquors applied on the outside, is a very useful Thing; as when they pour Oil upon Wine, or other vegetable Juices: for the Oil floating on the top, like a Stopple, excellently preserves them from the Injuries of the Air. Nor are Powders unfit for this Purpose; which tho' they contain a Mixture of Air, yet expel and prevent the Force of the external Air; as we see in the Preserving of Grapes, and other Fruits, by Sand or Flower. So again, Wax, Honey, Pitch, and the like tenacious Bodies, are properly used with a View to close Vessels perfectly, and exclude the external Air, or Atmosphere. And we have sometimes buried Vessels and other Bodies in Quicksilver; the densest Fluid that can be employ'd for this Purpose.

*Caves, Pits,
and Wells.*

312. Pits, Caves, and subterraneous Receptacles, are likewise of great Use, to exclude the Sun; and the open Air, which preys upon Things. And these kinds of Caves are used, in the Northern Part of *Germany*, for Granaries¹. And to this Head belongs also the suffering of Bodies to lie at the bottom of Water. Thus I remember to have heard, that certain Bottles of Wine, let down to cool in a Well, being by a casual Neglect left there and forgotten, for many Years, but at length drawn up again; the Wine was found to be grown, not vapid or flat, but much more generous and noble². But if it should be required to sink Bodies to the bottom of a River, or the Sea, without their touching the Water, or without being included in stopp'd Vessels, and yet be surrounded by Air; the Diving-bell, which is a Vessel sometimes employ'd for working upon Wrecks, or Ships under Water, may here prove of good Service.

*The Diving-
Bell.*

313. This Vessel is made of Metal, hollow like a Cask; and being let down with its Bottom parallel to the Surface of the Water, it carries along with it all the Air it contains, to the bottom of the Sea³; and having three Feet to stand upon, somewhat short of the Height of a Man, the Diver, when he wants to breathe, conveys his Head into the Cavity of the Vessel; where being refresh'd with Air, he afterwards continues his Work. And we have heard, that a Boat, or small Ship, was lately contrived, wherein

¹ See Vol. I. p. 291. and Vol. III. p. 168, 169, &c.

² See the Article *Maturation*, in the *Sylva Sylvarum*.

³ See Dr. Halley's Account of the Diving-Bell, in the *Philosophical Transactions*, N^o 349. See also Vol. III. p. 566.

wherein Men may row under Water, for some Distance*. However this be, under such a Vessel as we just now described, Bodies may be easily suspended in Air, at the bottom of the Sea.

314. There is also another Use of carefully including, and shutting up, Bodies in Vessels; viz. not only to keep out the external Air, but also *A new Use of close Operation.* to keep in the Spirit of the Body, operated upon internally; for 'tis necessary the Operator upon natural Bodies should be certain of his Quantities; or that nothing should expire or go off: for 'tis then that deep or great Alterations are made in Bodies, when, as Nature prohibits Annihilation, Art also prevents Loss, or the Escape of any Part of the Subject.

315. But a false Notion has here prevailed, which, if it were true, the Preservation of the entire Quantity of a Body, without Diminution, might be in a manner despaired of. The Notion is this, that the Spirits of Bodies, and Air highly rarified by Heat, can be contained by no Vessels; but constantly escapes through their Pores. Men have been persuaded to this Opinion, by those common Experiments; (1.) of inverting a Glass, with a piece of lighted Paper, or Candle in it, into Water, whence the Water rises upwards; and, (2.) of Cupping-Glasses, which being heated with Flame, attract the Flesh. For Men have imagined in both Cases, that the Air is attenuated, discharged, and lessened in Quantity; whence the Water, or Flesh, succeeds by the Motion of Connection^b. *An Objection to it removed.*

316. But this is erroneous; for the Air is not here lessened in Quantity, but contracted in Space: nor does the Water rise before the Flame is extinguished; or the Air grown cold; insomuch that Physicians, to make the Cupping-Glasses draw the better, clap Sponges upon them, dipt in cold Water^c. Therefore Men need not be so apprehensive, that Air, or Spirits, should easily escape this Way^d: for tho' it be true, that the most solid Bodies have their Pores; yet Air or Spirit, will not easily be subtilized to such a Degree: as neither will Water pass thro' a very small Crack^e.

317. As to the second Means of Practice; viz. by compressing, extending, agitating, &c. 'tis principally to be observed, that Compressions and such kinds of Violence, are of very great Force in local Motions, and the like; as in Machines and Projectiles; even so as to destroy organical Bodies, and their Virtues or Powers, which plainly consist in *The second Means of Practice; viz. Violence.*

* An Invention of this Kind is usually attributed to *Cornelius Drebbel*, who is said to have had a volatile Liquor for restoring the Air to its pristine Temper, after having been spoiled by Respiration. 'Tis farther said, that this Effect was produced barely by unstopping the Glass, wherein the Liquor was contained. But of this Matter there seems to be nothing known with Certainty; or at best, not with the requisite Particularity.

^b See above, §. 244.

^c The later manner of explaining this Phenomenon by the Rarification of the internal Air, and the Pressure of the external, will not here alter the Case; because the Air, upon this Supposition, does not pass thro' the Glass.

^d See Vol. III. p. 614.

^e See more to this Purpose in Vol. III. p. 512. 613.

Motion : for as all Life, all Flame and Ignition, are destroy'd by Compression ; so is every Machine spoiled, and its Parts confounded, or destroy'd, by the same. They are also of Force to destroy the Virtues consisting in Arrangement, or Position, and a somewhat grosser Dissimilarity of Parts ; as in Colours : for the Colour of a Flower, when whole, differs from its Colour, when bruised ; and so the Colour of Amber when whole, differs from the Colour of Amber, when bruised. So again, with regard to Tastes ; the Taste of an unripe Fruit is not the same as when ripe, or after having been squeezed and press'd ; but manifestly sweeter. These Violences, however, have no great Power over the more noble Transformations, and Alterations of similar Bodies ; because Bodies, by their means do not acquire any new, permanent, and quiescent State ; but one that is transitory, and always endeavouring to restore and free itself.

Whether Bodies may be permanently condensed, or rarified by Force.

An Experiment recommended for condensing Water.

318. But it might be proper to make some careful Experiments to shew, whether the Condensation of a similar Body, as Water, Oil, &c.^{*} or a Rarification violently introduced, may become constant and fixed ; so as to change, as it were, the Nature of the Subject : and it should first be tried by bare Continuance, and afterwards by Helps, and Consents. This would be easier to do in the Experiment formerly mentioned for attempting the Condensation of Water, included in a Lead Vessel, and wrought by the Hammer, and the Press^p ; in which Case, the metalline Globe, when beat flat, should be left in that State, for some Days before the Water was taken out ; in order to see whether it would immediately fill the same Dimensions it had before the Operation : for if it did not, either immediately, or soon after, the Condensation might seem to have been permanent ; or otherwise, if the Water restored itself, the Compression would appear to have been only transitory.

Another for rarifying Air.

319. And something of the same kind might be tried, as to the Extension and Rarification of the Air, in Glass-Eggs, after the manner formerly mentioned^q : when, the Air being strongly extracted by Suction out of the Glasses, and the Orifices suddenly closed, and well secured ; the Glasses are to remain thus for some Days ; and afterwards to be opened, to see whether the external Air would be attracted with a hissing Noise in at the Orifices of the Glasses ; or, if being opened under Water, the same Quantity of Water would be drawn in, as if they had been directly plunged into Water at first, after the Air was sucked out.

Such Condensations and Rarifications probable.

320. It is probable, (or at least deserves to be proved) that such Condensations and Rarifications may be made ; because Continuance of Time has the like Effect in Bodies a little more Dissimilar : thus, for Example,

^{*} See an Experiment of this Kind performed upon Air, in Mr. Hauksbee's *Physico-Mechanical Experiments*, p. 162---166.

^p See above, *Aph.* 45. §. 222.

^q See above, *Aph.* 45. §. 220.

Example, a Stick being bent by Compression, for some time, does not come strait again. And this cannot be attributed to any Loss in the Quantity of the Wood, by the Continuance; because the same thing happens also in a Plate of Iron, which is not exhalable. But tho' the Experiment should not succeed by bare Continuance, still the Business is not to be deserted; but other Assistances used^r: for 'tis no small Acquisition, if fixed and constant Natures may be given to Bodies by Violence; for thus Air might be converted into Water, by Condensation; and many Things of the like Kind be performable: for Man has a greater Command over violent Motions than he has over the rest^r.

321. The *third* Means of Practice regards that grand Engine, or Instrument, both of Nature and Art; viz. *Heat and Cold*. And here the human Power seems perfectly Lame on one Side; for we have the Heat of Fire infinitely stronger, or more intense, than that of the Sun, as it naturally comes to us; or than the Heat of Animals: but Cold is wanting; unless so far as it may be procured by the Severity of Winter; by Caverns; or, by the Application of Snow and Ice^r: which, in the way of Comparison, may about equal the Degree of Heat, afforded by the Noon-day Sun, in some Parts of the torrid Zone; increas'd by the Reverberation of Mountains and Walls: for such a Degree of Heat and Cold, may, for a small time, be endured by Animals: but this is nothing to the Heat of a Melting-Furnace, or to a Degree of Cold, that answers to such a Degree of Heat. And therefore all Things, with us, tend but to Rarification, Desiccation, and Consumption; and scarce any to Condensation, and Inteneration, or Suppleness, unless by Mixture, and, as it were, by spurious Means. Wherefore *Instances of Cold* are with great Diligence to be sought after; such as may perhaps be found by exposing Bodies, at great Heights, in sharp Frosts; laying them in subterranean Caves; surrounding them with Snow and Ice, in deep Places, or Reservatories made for the Purpose; by letting Bodies down into Wells; burying them in Quicksilver, and Metals; plunging them in the Waters which petrify Wood^r; burying them in the Ground, (as they relate of the Matter for making Porcellane) and the like. So likewise, the Condensations naturally made by Cold are to be sought, that their Causes being discovered, such Condensations may be transferred into Arts. Such natural Condensations we see in the sweating of Marble and Stone; in the Dew condensed on the inside of Glass Windows, after a frosty Night; in the

^r Such as large and strong Condensing Vessels, and Syringes, for compressing and confining the Air.

^r The Experiments of this Kind seem to have been no way duly prosecuted. The Success which Mr. *Hauksbee* met with, in a slight Attempt to destroy the Spring of common Air, might very well encourage the Use of greater Violence, stronger Vessels, and a greater Length of Time, for the Purpose. See his *Physico-Mechanical Experiments*, p. 162, &c.

^r See the *Sylva Sylvarum*, under the Article *Cold*.

^r For producing the greatest Degrees of artificial Cold, by freezing Mixtures, see Mr. *Boyle's History of Cold*; and the Chapter of *Fire*, in Dr. *Boerhaave's Chemistry*.

Condensation of Vapours into Water within the Earth, whence Springs frequently arise; and other Examples of this Kind.

Bodies potentially cold.

322. But besides those Things which are cold to the Touch, there are certain others potentially cold; which also condense: tho' they seem to operate only upon Animal Bodies, and scarce upon others. And of this Kind are many Things in Medicine; for some Remedies condense the Flesh and tangible Parts, such as Astringents and Thickners; and others condense the Spirits, as appears chiefly in Narcoticks *.

Two Ways of condensing the Spirit, by Narcoticks.

323. There are two Ways of condensing the Spirits by soporiferous Medicines; the one, by appeasing the Motion of the Spirits; and the other by dispelling, or putting them to Flight. Thus Violets, Roses, Lettuces, and the like mild and gentle Things, by their friendly and moderately cooling Vapours, invite the Spirits to unite, and restrain their brisk and restless Motion; but the stronger Opiates, by a malignant and unfriendly Quality, put the Spirits to flight; and therefore, if these are applied externally, the Spirits presently retire from the Part; and willingly enter into it no longer: but if taken internally, their Fumes ascending to the Head, every way chase away the Spirits, contained in the Ventricles of the Brain: and when the Spirits thus retreat, and are unable to fly into any other Part, they consequently come together, and are thus condensed; or, sometimes quite extinguish'd, or suffocated: tho' the same Opiates taken in Moderation, have the Virtue, by a secondary Accident, (or by that Condensation, which succeeds upon the coming together of the Spirits) of supporting, and fortifying the Spirits, and checking their useless and incentive Motions; whence such Opiates become of good Service in the Cure of Diseases, and the prolonging of Life †.

The Preparatives to Cold.

324. The Preparations of Bodies, likewise, for the Admission or Reception of Cold, cannot be omitted. Thus it is thought that a little warming of Water, hastens its freezing by Cold, more than if the Water was not warmed at all. And the Instances of this Kind are to be collected †.

The Ways of Condensing without Cold, to be enquired after.

325. But as Nature supplies Cold so sparingly, we should here imitate the Apothecaries, (who when a Simple cannot be procured, substitute one thing for another) and carefully search out the Substitutes or Succedaneums for Cold; that is, we should enquire how Condensations may be made in Bodies, without Cold, whose proper Office it is to effect them.

Are of four Kinds.

326. And these Condensations seem to be of four Kinds; the first whereof depends upon bare *Contrusion*; which because of the Resistance, or Recoiling of Bodies, has but little Force in causing a permanent Density; tho' it may do somewhat as an Auxiliary. The second is made by the *Contraction* of the grosser Parts of a Body, after the Avolation, or Exit, of the

* See the *History of Life and Death*, Vol. III. p. 376.

† See the *History of Life and Death*, passim.

‡ See Mr. Boyle's *History of Cold*.

the finer; as happens in Indurations by the Fire, and the repeated quenching of Metals, &c. The *third* is made by the *Approach, or coming together, of the more solid, or ponderous, homogeneous Parts* of a Body, which before were separated and mixed among the less solid; as in recovering the Quicksilver from Mercury-Sublimate, which in Powder possesses much more Space than simple Mercury: and so again, in purging and separating of Metals from their Dross. The *fourth* is made by *Consent*, or applying such Things as condense by a secret Virtue in Bodies; tho' these Consents have hitherto seldom appeared; which is no wonder, because till some Progress is made in the *Discovery of the Forms and Structures of Things*, there can be but slender Hopes of Advantage arising from the Enquiry into the Consents of Bodies^a.

327. But with regard to the Bodies of Animals, there are doubtless many Remedies, both internal and external, which condense, as it were by Consent; according to what was just now observed: but this Kind of Operation is rare in inanimate Bodies^a. There goes a Report, as well in Writing as Discourse, of a Tree in one of the *Tercera Islands*, that perpetually distills Water, so as to be of some Convenience to the Inhabitants^b: and *Paracelsus* says, there is a Plant called *Rosa Solis*, or *Ros Solis*, that remains full of Dew in the Noon-day Heat; when all other Herbs are dry^c. And if these *Instances* are true, they might prove of noble Use, and very worthy of farther Examination. But for those Honey-Dews, which, like Manna, are found upon Oak-Leaves in the Month of *May*; we judge they are not made, or condensed, by any Consent, or Peculiarity in the Oak-Leaf; but that they fall upon other Leaves also, and are only caught and detained upon the Leaves of the Oak, because these are closer, and not so spongy as most other Leaves^d.

328. As to Heat, Men have a large Supply, and a great Command thereof; tho' some of its most necessary Particulars still remain to be observed, and enquired into, notwithstanding the Boasts of the *Chemists*. For tho' the Works of intense Heat are much sought after and admired; yet the Effects of a slow Heat, (which are chiefly those produced by Nature,) remain unexperienced and concealed. Hence we see, by the violent Heats now commonly used, the Spirits of Bodies are greatly exalted; as in mineral acid Spirits, and certain chemical Oils; but the tangible Parts are harden'd, and sometimes fixed; with the Loss of the volatile ones. And thus the homogeneous Parts are separated, and the heterogeneous grossly incorporated and mix'd together; whilst the Structure, and more subtile Texture of compound Bodies, is, by this means, confounded and destroy'd: so that the Effects of a milder Heat ought, by

Condensation by Consent in Animals.

The Uses to be made of Heat.

The gentle Heats recommended.

^a Because such Consents, or particular Agreements, depend thereon. See below, §. 335.

^b See the *History of Condensation and Rarefaction*, passim.

^c See Vol. III. p. 563. See also Dr. Sprat's *History of the Royal Society*.

^d See the *Sylva Sylvarum*, Vol. III. p. 260.

^e See the *Sylva Sylvarum*, p. 261.

by all means, to be try'd and discover'd: whence much more subtile Mixtures, and regular Textures, or Structures of Bodies, might be procured in Imitation of Nature, and the Works of the Sun; according to what we intimated above^c. For the Operations of Nature are perform'd by much slower Degrees, or much smaller Steps and Portions at a time, and by more exquisite and various Positions, or Arrangements, than the Works of Fire, as it is now employ'd. *And 'tis then that the human Power may seem truly enlarged, when, by Heats and artificial Ways, the Works of Nature may be exactly imitated, or express'd in Appearance, perfected in Virtue, and varied in Number; to which we may also add, accelerated in Time^f.* Thus the Rust of Iron is a long while in making; but expeditiously obtained in the artificial *Crocus Martis*. And the same is to be understood of Verdigrease and Ceruse. Crystal is produced by a long Process; but Glass by a short one: Stones grow slow; but Bricks are presently made.

Art operates quicker than Nature.

The several Diversities of Heat to be tried.

329. And all the Diversities of Heat, with their different Effects, are, with Diligence and Industry, to be sought out and collected from all Quarters; viz. (1.) those of the heavenly Bodies, by their direct Rays; and as they are reflected, refracted, and united by Burning-Glasses^g: (2.) those of Lightning, Flame, and Coal-Fires: (3.) Fires of different Materials: (4.) open Fires, close Fires, straiten'd and streaming Fires; or Fires modified by all the various Structures of Furnaces: (5.) Fire animated by the Blast: (6.) Fire left to itself, and unexcited: (7.) Fire removed to a greater or less Distance: (8.) Fire acting thro' different Mediums: (9.) moist Heats, as those of the *Balneum Mariæ*, and the Dung-hill; external and internal animal Heats; compress'd Hay, &c.^h (10.) dry Heats; as of Ashes, Lime, Sand; and, in short, Heats of all Kinds, with their various Degrees^h.

Small, irregular, stated Heats recommended.

330. Above all, the Enquiry and Discovery of the Effects and Productions of Heat, continued and remitted gradually, regularly, and periodically, at due Distances, and with due Continuance, should be attempted: for this stated Inequality is a true Offspring of the Heavens, and the *Mother of Generation*. Nor is any thing extremely great and commanding to be expected from a vehement, hasty, and subsultory Heat. This appears plainly in Vegetables; and again in the Wombs of Animals, where there is a great Inequality of Heat, from the Motion, the Sleep, the Food, and the Passions of the Female in Gestation: and, lastly, the same Inequality takes Place in the Matrices of the Earth, where Metals and Minerals are formed.

331. This

^c See *Apb.* 35.

^g See the *Sylva Sylvarum*, Vol. III. p. 32.

^h See the Experiments made, with the Duke of Orleans's Burning Lens, by *M. Homberg*; *Memoir. de l'Acad. Roy.* An. 1702. See also the *Philosophical Transactions*, and *German Ephemerides*, to the same Purpose.

^h See the Author's *New Atlantis*, Vol. I. p. 295. See also the *Sylva Sylvarum*, Vol. III. p. 92-96.

331. This renders the Unskilfulness of some modern Alchemists the more remarkable; who expect to obtain their End by means of an *Athamor*, or the equable Heats of Lamps, &c. kept burning, in one constant mannerⁱ. And so much, at present, for the Works and Effects of Heat. Nor is it yet the Season to examine these Particulars thoroughly, before the *Forms* and Textures of Bodies shall have been farther discovered and brought to Light: for 'tis then that Instruments are to be sought out, applied, and adapted; when the Examples, Views and Designs are fixed and determined.

The Inadvertence of the Alchemists, in using a constant Heat.

332. The *fourth* Means of Practice, viz. *Continuance*, is the Provider and Dispenser of Nature. We call that *Continuance*, when a Body is left for a considerable Time to itself, guarded and defended from all external Force; in which State the intestine Motions discover, and finish, or perfect their own Course; whilst the extraneous and adventitious Motions are excluded: for the Works of Time are much more subtle, than the Works of Fire^k. Wine can no way be so well clarified by the Fire, as by Time; nor are the Incinerations made by Fire so exquisite as the Resolutions, Consumptions, and Decays of Time. The sudden and precipitate Incorporations and Mixtures made by Fire, are far inferior to those made by Time. And the different and various Textures, which Bodies endeavour at by *Continuance*, as in the Case of Putrefactions, are destroy'd by Fire, or a violent Heat^l.

The fourth Means of Practice; viz. Continuance.

333. It may be here proper to observe, that the Motions of Bodies perfectly included, or close confined in Vessels, suffer something of Violence; as this Imprisonment hinders the spontaneous Motions of the Body: and therefore *Continuance* in an open Vessel, conduces more to Separation; but in a Vessel perfectly closed, to Commixture, or Combination; and in a Vessel imperfectly closed, without excluding the Air, to Putrefaction^m: and in all these Cases, *Instances of the Works and Effects of Continuance* are to diligently collected from all Quarters.

The Motions of confined Bodies suffer Violence.

334. The *fifth* Means of operating, viz. by *Government and Regulation of Motion*, is extremely powerful. We call that the Government and Regulation of Motion, when one Body, by meeting another, hinders, repels, or directs its spontaneous Motion. And this generally consists in the Figure and Position, or Situation of the Vessels: thus the Figure of an erect Cone forwards the Condensation of Vapours, in Alembics; but an inverted Cone promotes the purging of Sugar, or the Discharge of the Treacle into the Receiversⁿ. Sometimes also Curvature,

The fifth Means of operating; viz. by Regulating Motion.

ⁱ See the *Sylva Sylvarum*, under the Article *Gold*.

^k See the *Sylva Sylvarum*, under the Articles *Heat*, *Preservation*, and *Putrefaction*.

^l See the *Sylva Sylvarum*, passim.

^m See the Article *Putrefaction*, in the *Sylva Sylvarum*.

ⁿ And hence the Figures, or Make of all the chemical, or other Vessels, may be easily determined. See *Boerhaave's Chemistry*, under the Chapter of *Vessels*.

vature, or Flexure, Straitness, and Dilatation, are required by Turns, and the like. And all Percolation depends upon this, that whilst the opposing Body opens to one Part of the Liquor, it closes upon or stops another°. Nor is the Business of Percolation, or other Regulation of Motion, always carried on by external Means; but also by internal, or by Means of one Body within another: as when Stones are put into Water to collect its Sediment, or earthy Parts; or when Syrups are clarified with the Whites of Eggs, whereto the grosser Fæculences adhere, and may be afterwards separated^p. And to this Regulation and Direction of Motion, *Telefius*, from a slight and superficial Consideration, attributes the Figures of Animals; as if they were moulded, and took the Impression of the veiny, wrinkled, and hollow'd Sides of the Matrix. For he ought to have consider'd, that tho' Eggs also are formed in the *Uterus*, after the same manner as the *Fetus*; yet no Wrinkles or Inequalities appear on their Shells. But it is true, indeed, that the Regulation of Motion produces Figure in Moulding and Cast-Work.

The sixth
Means of Pra-
ctice, viz.
Consent.

335. The sixth Means of Practice consists in operating by Consents, or Avoidances, which frequently lie deep concealed: for those usually call'd occult, and *specific Properties*, and Sympathies and Antipathies, are in great measure the Corruptions of Philosophy. Nor can we have any solid Hopes of discovering the Consents of Things, before the Discovery of *Forms*, and simple Textures: for Consent is no more than the Sympathy or Correspondence of *Forms* and *Textures* to each other^q.

The more uni-
versal Con-
sents of
Things.
Their Diffe-
rences.

Sulphur and
Mercury,
two Tribes of
Things.

336. But the greater, and more universal, Consents of Things, are not absolutely obscure. We will, therefore, begin with these. The first and principal Diversity of Things, is this; that some Bodies differ greatly in their Quantity, and Rarity of Matter; yet agree in Texture: whilst others agree in Quantity and Rarity of Matter; but differ in Texture. For it is well observed, that the two chemical Principles, Sulphur and Mercury, run, as it were, thro' the Universe of Things^r. And, doubtless, there appears to be a certain Consent of Nature, or an Agreement of Bodies, in these two Principles, from a Consideration of the most universal *Phænomena*. Thus there is an Agreement betwixt Brimstone, Oil, unctuous Exhalations, Flame, and perhaps the Body of the Stars: and, again, between Quicksilver, Water, and aqueous Vapours, Air, and perhaps the pure interstellar Æther. But these two larger Sets, or Tribes, of Things, differ prodigiously from each other, in Quantity of Matter and Density; tho' they greatly agree in Texture; as appears in numerous Instances. But, on the other hand, the different Metals have a great Agreement in Quantity of Matter, and Density;

• See the Articles *Clarification* and *Percolation*, in the *Sylva Sylvarum*.

^p See Vol. III. p. 49, &c.

^q See above, §. 326.

^r See the *Sylva Sylvarum*, under the Article, *Principles of Chemistry*.

Density; especially in respect of Vegetables; &c. but differ greatly in Texture: whilst Vegetables and Animals have an infinite Variety of Texture; yet differ not considerably in Quantity of Matter, or Density^a.

337. The next most *general Consent*, is that betwixt primary, or perfect Bodies, and their fostering Matters, that is their Solvents and Aliments. It must therefore be examined, in what Climate, in what Earth, or Glebe, and at what Depth, all the Metals are generated^b; and so of Gems, whether those of the Rock, or produced in Mines^c: in what Glebe, or Earth, all Trees, Shrubs and Plants, principally grow, and delight; likewise what Amendments, or Kinds of Composts, whether of Chalk, Sea-sand, Ashes, &c. succeed the best^d; and which of them are fittest, and most serviceable, according to the difference of the Land. So again, the Grafting and Inoculating of Trees, and Plants; with the Methods thereof: for the most successful Ingrafting has a great Dependance upon Consent, betwixt the Trees ingrafted. In which respect, it is an agreeable Experiment, which we are informed was lately tried, of the ingrafting of Field-Trees; which has hitherto been practised only in those of the Garden: whence the Leaves and Mast of the former have been obtained much larger, and the Trees render'd more shady^e. In like manner, the *Aliments of Animals* must be respectively noted, in general; together with their Negatives^f: for carnivorous Animals cannot be fed with Herbage. Whence, (tho' the Will in Men has a greater Influence over their Bodies, than in other Animals,) the Order of the *Folietani*, or Leaf-Eaters, is said to have dropp'd, after Trial, upon finding that Leaves were not capable of nourishing the human Body^g. Again, the different Matters of Putrefactions, whence little living Creatures are bred, should be likewise regarded^h.

338. The Consents betwixt perfect Bodies, and their Subordinates, as exemplified above, are sufficiently manifest; whereto may be added the Consents betwixt the Senses and their Objects: And as these latter Consents are exceeding evident, well observed, and thoroughly discuss'd; they may afford great Light to other Consents that are hitherto latent^b.

339. But the *internal Consents and Avoidances of Bodies*, or their Affections and Disagreements, vulgarly, and often superstitiously, call'd by the Name of *Sympathies* and *Antipathies* (whence we unwillingly use the Expression) are exceeding rare; as being either falsely attributed to

*The Consent
betwixt Bo-
dies, and their
Aliment.*

*The Consent
betwixt the
Senses, and
their Objects.*

*Sympathies
and Antipa-
thies.*

^a See the *History of Condensation and Rarification*, Vol. III. p. 512, 513. &c.

^b See *Becher's Physica Subterranea*.

^c See Mr. Boyle's Piece of the *Origin and Virtues of Gems*.

^d See Vol. III. p. 244, 281, &c.

^e See the *Sylva Sylvarum*, under the Article *Vegetables and Vegetation*.

^f As in discovering the *Form of Heat*. See the *Tables*, Aph. 12, &c.

^g See the *Sylva Sylvarum*, Vol. III. p. 77.

^h See the *Sylva Sylvarum*, passim.

ⁱ See the *Sylva Sylvarum*, under the Articles *Imagination, Senses, Sound, Sympathy, &c.*

Things; mix'd with Fables; or overlook'd and neglected. Thus there is said to be an Enmity between the Vine and the Colewort^c; because they thrive not well, when planted near each other: whereas the Reason is, that both of them are succulent, and powerfully attract the Moisture of the Earth; whence they mutually defraud each other. So there is said to be a Consent, and Friendship, betwixt Corn and the red Poppy; because they both grow only in plough'd Ground: whereas there rather seems to be an Enmity between them; because the Poppy grows from such a Juice of the Earth, as was left and rejected by the Corn; so that the sowing of Corn prepares the Ground to yield Poppies. And there is a great Number of these false Reasons, and fictitious Solutions of Consents, or Sympathies, prevailing. But Fables are here to be absolutely rejected: whence there will remain but a slender Stock of such *Consents* as are approved, by certain Experience; like those, between Iron and the Loadstone; Gold and Quicksilver, &c. tho' there are some others also found worthy of Observation, in chemical Experiments upon Metals^d. But the most are to be observed in certain Medicines, which, by secret and specific Properties, regard either certain Parts, or Humours of the Body, or certain Diseases, and sometimes individual Natures^e.

To be duly collected.

The Consents of the Moon.

340. Nor are the *Consents* between the Motions and Changes of the Moon, and the Affections and Passions of the inferior Bodies, to be omitted; so far as they may be observed, and collected, from the Experiments of Agriculture, Navigation, and Medicine, or otherwise, with the requisite Severity, and Justness of Choice and Judgment^f. And the less common all the *Instances of secret Consents* are, with the greater Diligence they ought to be enquired into, upon the Footing of faithful History and just Relation; provided this be done without Levity, or Credulity, and with a proper Degree of Doubt, Suspension, and Tradition^g.

A Disposition or Indisposition to Union, by Apposition.

341. There is still another *Consent* of Bodies, in the way of operating, which, tho' it seems inartificial, is yet of excellent and various Use, and ought therefore to be enquired into by the Means of careful Observation; viz. a Disposition, or Indisposition, to unite by simple Composition, or Apposition: for some Bodies easily and readily mix and incorporate; but others with Difficulty, and unwillingly. Thus Powders mix best with Waters; but Calxes and Ashes with Oils, &c. And not only the *Instances of the Propensity or Averseness of Bodies to mix*, are to be collected; but likewise the *Instances of the Arrangement of Parts*;

3

^c See Vol. III. p. 258.

^d See Becher's *Physica Subterranea*.

^e See Mr. Boyle of *Specific Remedies*.

^f See the *Sylva Sylvarum*, and *History of Winds*, passim.

^g See the *Sylva Sylvarum*, under the Articles *Imagination*, *Sympathy*, &c.

Parts; their Distribution and Digestion upon Mixture; and, lastly, those of Predominancy after the Union is made^b.

342. The *seventh* and last Method, or *Means of Practice*, is to operate *The last Means of Practice; viz. by variously combining the former six.* But till each of those shall have been farther enquired into, it will not be seasonable to offer any Examples of this Method. The Series, or Chain, of this Kind of Alternation, or different Combination of Ways, as it may be accommodated to the Production of particular Effects, is, indeed, exceeding difficult to be understood; tho' extremely powerful in the effecting of Works. But Mankind labour under the utmost Impatience, with regard to this Kind of Enquiry and Practice^c; tho' it be like a *Clue to the Labyrinth of great Works*^k. And thus much by the way of illustrating *Sovereign Instances*.

APHORISM LI.

343. In the *twenty-seventh*, and last Place, among our *Prerogative Instances*, come *Magical Instances*; by which we understand such wherein the Matter, or Efficient, is but small, compared with the Greatness of the Work, or Effect, produced: so that tho' these *Instances* were common, they would still be almost miraculous; some of them at first Sight, and others even when attentively considered. Nature, indeed, of herself, affords these sparingly; but what she may do, when farther searched and entered into; and after the *Discovery of Forms*, latent *Processes* and concealed *Structures*; will appear to Posterity^l.

344. These *Magical Effects*, so far as we can hitherto conjecture, are produced three Ways; viz. (1.) by *Self-Multiplication*, as in Fire, and those Poisons, called Specific; as also in Motions, which pass and increase, as they go, from Wheel to Wheel; (2.) by *Excitation*, or *Invitation*, in another Body; as the Loadstone animates numberless Needles, without Loss, or Diminution of its Virtue: and we find the same kind of Virtue in Yeast, &c. (3.) by the *Preoccupation of Motion*, as we above observed in Gunpowder, Guns, and Mines^m.

345. The two former of these Methods require the *Discovery of Con- Their Requi-*
sents; and the third, the *Measure of Motions*. But whether there be any *sites*.

^b It deserves to be attentively consider'd, how ready and commodious a Thing Practice would prove, if all the Assistances here pointed out, were procured; and employ'd, as they might be, according to the Design of this Piece.

^c That is, they have not Patience to go through the Enquiry, which alone directly leads up to Practice: Or they preposterously desire to obtain the End, without enduring the Means.

^k The Reader may have some tolerable Notion of the Thing here meant, by carefully reading over the Author's *Histories of Life and Death*; of *Winds*, and of *Condensation and Rarification*; and understanding to what Discoveries they lead; or what the Tendency is of the whole *Instauration*; for which, see Vol. I. p. 10--16.

^l Little Progress has been hitherto made in this *medullary Part of Physics*; for Men have frequently mistaken, or wilfully deserted, the Road that leads to it; tho' this was not only pointed out, but entered by the Author; as appears remarkably in his *Sylva Sylvarum*; *History of Life and Death*; *History of Winds*, &c.

^m *Aph.* 36.

Method of changing Bodies in their smallest Parts, and transposing the more subtle Textures, or Structures, of Matters (which is a Thing that regards all Kinds of Transformations in Bodies ; so that Art might thus quickly effect, what Nature is a long while in bringing about. We have hitherto no certain Indications^a. For as in Things that are solid, true and useful, we aspire to the ultimate, or highest Perfection ; so we perpetually despise, and to the utmost of our Power, discard and reject such as are vain, tumid and empty. And so much for the Subject of *Prerogative Instances*.

APHORISM LII.

The Notum Organum, not a Philosophy, but a Logick.

346. It must be observed, that in this our *new Machine* for the Understanding, we deliver a *Logick*, not a *Philosophy* : but as our *Logick* directs the Understanding, and instructs it, not like the common *Logick*, to catch and lay hold of abstracted Notions, as it were by the slender Twigs, or Tendrels, of the Mind ; but really enters, and cuts through Nature, and discovers the Virtues and Actions of Bodies, together with their Laws, as determined in Matter ; so that this Knowledge flows not only from the Nature of the Mind, but also from the Nature of Things, and the Universe ; hence it is no wonder, that in order to give *Examples and Illustrations of our Art*, we every where employ physical Considerations and Experiments.

Recapitulation of the Doctrine of Prerogative Instances.

347. We have here laid down twenty-seven *Prerogative Instances*, viz. (1.) *Solitary Instances* ; (2.) *Travelling Instances* ; (3.) *Glaring Instances* ; (4.) *Clandestine Instances* ; (5.) *Constituent Instances* ; (6.) *Conformable Instances* ; (7.) *Singular Instances* ; (8.) *Deviating Instances* ; (9.) *Frontier Instances* ; (10.) *Instances of Power* ; (11.) *Accompanying and Hostile Instances* ; (12.) *Subjunctive Instances* ; (13.) *Instances of Alliance* ; (14.) *Crucial Instances* ; (15.) *Instances of Divorce* ; (16.) *Instances of Entrance* ; (17.) *Summoning Instances* ; (18.) *Journing Instances* ; (19.) *Supplemental Instances* ; (20.) *Lancing Instances* ; (21.) *Instances of the Staff* ; (22.) *Instances of the Course* ; (23.) *Doses of Nature* ; (24.) *Instances of Reluctance* ; (25.) *Intimating Instances* ; (26.) *Sovereign Instances* ; and, (27.) *Magical Instances*.

These Instances assist either the Sense or Understanding.

And, in Point of Information, they assist either the *Sense*, or the *Understanding* : the *Sense*, as the five Instances of *Light* ; and the *Understanding*, either by hastening the *Exclusion of the Form^o*, as the *Solitary Instances* ; or by contracting, and more nearly indicating, the *Affirmative of the Form^p* ; as the *Travelling, Glaring, Accompanying, and Subjunctive Instances* ; or by raising the Understanding, and leading it to Kinds, and common Natures ; and that either immediately, as the *Clandestine, and the Singular Instances*,

^a See Vol. I. p. 87---89.

^b See the Tables, Aph. 11, 12, &c.

^c See the Tables, Aph. 11, &c.

Instances, and *Instances of Alliance*; or in the next Degree, as the *Constituent Instances*; or in the lowest Degree; as the *Conformable Instances*; or again, by rectifying the Understanding, depraved by the Things whereto it is accustomed, as the *Deviating Instances*; or by conducting it to the great Form, or *Fabrick of the Universe*, as the *Frontier Instances*; or, lastly, by guarding it against *false Forms, and Causes*, as the *Crucial Instances*, and *Instances of Divorce*.

348. And as to *Practice*; they either mark out, measure or facilitate *Their Use to it*. They mark it out by shewing with what Particulars we are to be- *Practice*. gin, to prevent labouring in vain; as the *Instances of Power*; or to what we should aspire, if it be attainable; as the *Intimating Instances*: the four *Mathematical ones*, measure and limit it; and the *Sovereign and Magical ones*, facilitate it ⁹.

34. And of these *twenty-seven Instances*, a Collection of some *How these several Instances should be made at first*; as was above observed^r; without waiting till we come to *particular Enquiries*: and of this Kind are the *Conformable*, the *Singular*, the *Deviating*, and the *Frontier Instances*; the *Instances of Power*, and of *Entrance, Intimating, Sovereign, and Magical Instances*: because these either assist and rectify the Understanding, or the Sense; or afford Instruction with regard to Practice in general: and for the rest, they are to be searched out when we make *Tables of View*^s for the Business of the *Interpreter*, upon any particular Subject. For the *Instances* honoured and enobled with these Prerogatives, are like a Soul among *vulgar Instances of View*; and as we said at the first^t, a few of them serve instead of many: and therefore when we make *Tables*, such *Instances* are studiously to be sought out, and set down therein. The Doctrine of them was also necessary to what we design shall follow; and therefore a preparatory Account thereof was here requisite.

350. And now we should proceed to the *Helps, and Rectification, of In-Conclusion*. *duction*, then to *Concretes, latent Processes, concealed Structures, &c.*

as

⁹ If all this has not been clearly perceived in reading the foregoing *Doctrine of Prerogative Instances*, the whole may deserve to be read over again, in the Light that is here afforded. And as a Foundation, let the *fourth Aphorism* of this *Second Part* be well understood. When the whole is conquer'd, it will appear, that this *Doctrine of Instances* is a very important Part of the *Novum Organum*; and makes the Business of Enquiry an almost mechanical Thing, level to every Capacity: for if the *Instances*, that is, *Particulars*, be collected upon any Subject, and thrown into *Tables*, in the manner here directed; they of themselves exhibit a concise History of the Subject; that leads up to its *Form*, or latent Process. Hence this *Doctrine of Instances* is a kind of general *Direction, or Table*, for the due conducting and prosecuting of all Enquiries; so as at the same time to determine, limit, or almost grasp, the Form of the Nature enquired into, and lead directly to Practice. And in this View let the Author's particular Histories be constantly read; as those of *Life and Death; Winds; Condensation and Rarification*; and several in the *Sylva Sylvarum*.

^r See *Aph. 32.*

^s See *Aph. 11, &c.*

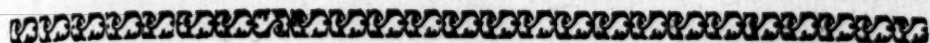
^t See *Aph. 22.*

as mention'd in order, under the *twenty-first Aphorism*; that at length, like faithful Guardians, we might possess Mankind of their Fortunes, and release and free the Understanding from its Minority: upon which an Amendment of the State and Condition of Mankind, and an Enlargement of their Power over Nature, must necessarily ensue. For by the Fall, Man at once forfeited his Innocency, and his Dominion over the Creatures; tho' both of them are, in some measure, recoverable, even in this Life: the former by *Religion* and *Faith*; and the latter by *Arts* and *Sciences*. For the World was not made absolutely rebellious by the Curse; but in Virtue of that Denunciation, *In the Sweat of thy Brow thou shalt eat thy Bread*, it is at length, not by Disputes, or indolent magical Ceremonies^u, but by various real Labours, subdued, and brought, in some Degree, to afford the Necessaries of Life^w.

^u Such as those in the Sympathetic Philosophy; the Magical Philosophy of *Paracelsus*, &c.

^w See *Vol. III. p. 4, 5, 6.*



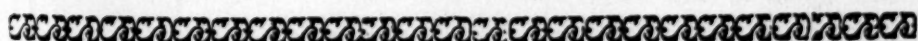


A P P E N D I X

To the SECOND PART of the
INSTAURATION:

Containing some INTIMATIONS for perfecting the

N O V U M O R G A N U M .



APPENDIX

To the Second Part of the

INSTITUTION:

NO. 10. ORGANUM



A P P E N D I X

To the SECOND PART of the

INSTAURATION.

1.  HE Author purposely left many Parts of his *New Engine* *The Novum* untouched, to go in quest of proper Materials whereon *Organum* left to employ it; and, being prevented by Death, did not *unfinisbed.* return from prosecuting the latter Design, to finish the former. Whence tho' the Parts that are treated, appear perfect, as Parts; yet the Whole of this grand *Engine* wants much of being compleated ^a.

2. The Contrivance itself has, by the greatest Masters in Science, been *The finishing* thought the best adapted, and most serviceable, of all those at any time *of it, a Thing* proposed, for the Advancement of Philosophy and Arts; so that to per- *of Consequence.* lect and fit it for general Use, may deserve more than ordinary Care and Concern.

3. And tho' to bring it so forward as we find it, was the Labour of *The Author* a Master-Builder; tho' the Work, in its own Nature, is difficult, and, *has left Dire-* to vulgar Philosophers, somewhat paradoxical; yet, perhaps, the Au- *ctions about it.* thor has left such Instructions concerning it, as may enable Workmen of a lower Class to finish it, and render the Method of using it generally intelligible: which seems rather to require sedulous Application, than any extraordinary Learning, or uncommon Abilities.

^a See Vol. III. p. 5, 6.

*The Attempts
of others in
the same ge-
neral Kind.*

4. In order, therefore, to promote the finishing thereof, it may be proper to indicate the more considerable Attempts that have hitherto been made, with a View to something of the Kind; and shew what farther remains to be done, with regard to the perfecting of this noble Invention, and bringing it into familiar Use.

*Aristotle's A-
nalytics.*

5. *Aristotle* has left us four Books of *Analytics*: the two first whereof, shew how to construct the Forms of Reasoning; and the two latter, deliver the Art of Discovering and Judging of Things.

*Gunther's
Books of Me-
thod.*

6. These Books of *Analytics* appear to have been little understood, till they were illustrated and explain'd by *Gunther*; with the Addition of what is found to the same Purpose in *Plato*^b and *Galen*^c. *Gunther* has two Treatises upon the Subject: from whence many later Writers upon Methods, seem to have drawn their Doctrine; only illustrating it with Examples derived from Mathematics, Algebra, and Physics^d.

*Weigelius's
Analytis Ari-
stotelica.*

7. This Work of *Gunther* was many Years after succeeded by another of the great Mathematician *Weigelius*; wherein he endeavours to deduce the Art of Demonstration from mathematical Principles; and farther to explain, illustrate, and shew the Use of *Aristotle's Analytics*^e.

*Des Cartes de
Methodo.*

8. The celebrated M. *des Cartes* wrote an express Treatise *de Methodo*; wherein he reduces the whole Art to four Rules, that seem contain'd in *Aristotle's Analytics*; and will be found to coincide with the *Medicina Mentis*, mentioned below^f. This Method of *des Cartes*, is deliver'd, with considerable Improvements, in the fourth Part of the *Art de Penser*; where the Author constitutes two Methods; viz. the *Analytical*, and *Synthetical*; the former for Discovering, and the latter for Teaching. And he illustrates the Whole with a Variety of Examples, as well physical as mathematical.

*Tschirnhaus's
Medicina
Mentis.*

9. Upon the same Foundation, in the Year 1687, the excellent M. *Tschirnhaus*, a Member of the Royal Academy of Sciences at *Paris*, published an Essay towards a genuine Logic, or Method of discovering unknown Truths^g. This is an extraordinary Performance, that proceeds entirely upon the mathematical, or rather algebraical Method; and deserves to be read with Care and Attention.

*The Occasion
of that Work.*

10. M. *Tschirnhaus*, reflecting that Mathematicians being the only Set of Men, who either maintain'd no Controversies, or at least soon came to a Determination of them; hence apprehended, that Mathematicians alone

^b See *Plato*, in *Phædr.* passim.

^c See *Galen*, de optim. Docend. gen.

^d See *Owenus Guntherus Methodorum Tractatus duo, continentes totius artis Logicæ medullam, facultatem omnium Scientiarum ac Demonstrationum Principia inveniendi, dijudicandique rationem.* Helmstad. 1586.

^e See *Analytis Aristotelica, ex Euclide restituta.* Jenæ 1658.

^f §. 9.

^g *Medicina Mentis, sive Artis Inveniendi Præcepta Generalia*: or what explains the Design better, *Tantamen genuinæ Logicæ, ubi differtur de Methodo detegendi incognitas Veritates.* The Second Edition is corrected and enlarged by the Author.

alone were possessed of the right Method of Enquiry. Upon this, he applied himself to mathematical Studies; in order to see whether, by making the proper Alterations, the mathematical Method could not also be accommodated to other Subjects.

11. In particular, he applied himself to *Algebra*; and found that this Art performs even more than it promises; and with the highest Degree of Certainty: when, having acquired a Habit of solving the greatest Difficulties therein, and examining the secret Nature of its Method, or Manner of Procedure; he says, he observed that unknown Truths may be discover'd, after the same Manner, not only in Mathematics, but in every other Science. *The Perfection of Algebra.*

12. He makes the Foundation of human Certainty to lie in those Things wherein the Operation of the Understanding is most manifest; or those which may be conceived, without any Possibility of a Contradiction; as that the Whole is greater than a Part; that the Radii of a Circle are equal, &c. whence numerous other Truths may be drawn: and, on the other hand, he lays it down for certain, that those Things which cannot be conceived, are false. *The Foundation of Certainty.*

13. But here the Author cautions us against being deceived by the Imagination; for, according to him, many Things are perceived by the Imagination only; of which Things no distinct Notion, or Conception, can, by Words, be communicated to another; as in the Case of Pain, Light, Colours, Sound, &c. Hence he recommends two Ways of distinguishing between the Perceptions of the Imagination, and the Conceptions of the Understanding. The first is, by large and frequent Experience, and especially, by the Help of Mathematics, to acquire a Habit of finding the Difference betwixt them; and the second, is to consider the Equality there is in the human Understanding, which all Men have equally alike: for what a Man truly conceives, he can communicate to another; as we see in mathematical Demonstrations, which are equally understood by all Men; whereas those Things which are perceived by the Imagination, as he calls it, are perceived unequally, or more by some, and less by others. And by justly distinguishing betwixt these two Powers, or Faculties of the Mind, he supposes many great Errors may be avoided. *The Cautions required in laying it.*

14. We next proceed to the Author's Method of discovering new Truths; wherein he supposes that any one may continually advance to an indeterminate Length, without Danger of falling into Error. And here he advises us first to procure, with great Diligence, a Stock of all the possible Conceptions which the Mind, in the common Course of Studies and Occasions, takes Cognizance of. For, from these Conceptions, Definitions, in his Method, are to be immediately formed; then Properties to be deduced from these Definitions; which Properties he calls by the Name of Axioms: and from the Definitions, combined all *The Way of discovering new Truths.*

manner of Ways, he discovers secondary *Truths*, or *Theorems*; thus making the whole Process algebraical.

That Men may form just Definitions.

15. He determines it to be in the Power of Men to form scientific Definitions; and in order to form them justly, advises us to consider the Manner wherein the Thing to be defined is itself actually formed: or, as he calls it, still in Allusion to Mathematics, generated; and from this Consideration, he directs us to derive the Definition. Thus, for Example, he defines Virtue to be the Power which Men have of preserving their own Nature, according to the Laws of just Reason; or of procuring to themselves all the real Perfections both of Body and Mind; or, again, the Perfection, or Melioration of human Nature, according to the Laws of just Reason.

Rules for forming them.
The first.

16. To facilitate this Business of forming Definitions, he lays down three general Rules. The *first* is, for reducing Things, in Thought, under their ultimate Kinds, or most general Conceptions. And these highest mental Kinds, or Classes, he makes to be three; relating to Things *Imaginary*, *Mathematical*, and *Physical*: under which Heads all Things that exist may be ranged.

The second.

17. The *second* Rule is, when Things are thus reduced under their highest Kinds, or Classes, to observe, either by Reason or Experience, what Things those are which remain continually present in every Conception.

The third.

18. The *third* Rule is, that all the formed Conceptions be so order'd, as to succeed each other, according to what he calls the Number of Possibilities, or Elements; or according as one Thing supposes the Existence of another: beginning with the simple Cases, and proceeding gradually to the more complex.

The Elements of Things.

19. The first Elements of *Imaginary Things*, perceived by the Sense^a, he makes to be Fluidity, and Solidity; the first of the *Mathematical*, he makes to be Points, strait Lines, and Curves; and the first of the *Physical*, Matter, Motion, and Rest; without which nothing farther can be conceived. These Rules he explains and illustrates by many Examples, especially of the mathematical Kind: and then proceeds to shew the Way of forming Axioms from these genuine Definitions; which he supposes to be the Elements, or first Principles of Truths. And by considering these Definitions, either simply, or comparatively, and in all their elementary Relations, he deduces those Truths from them, which he calls *Axioms*. And thus, by considering the scientific Definitions of a strait Line and a Circle, or the Relations arising from their Generations; a large Number of *Axioms* may be deduced. For Example, from considering the Generation of a Circle, by the Revolution of a strait Line about a fixed Point, this Axiom arises; *viz.* that the Motion is slower.

^a See above, §. 13.

flower towards the Centre, and quicker towards the Circumference. And so in other Cases.

20. After the requisite Definitions are formed, and compared together, *The Method*, the last Thing is to combine, or join them with each other, so as to *algebraical*. constitute what the Author calls *Theorems*, or new Truths. For two or more Definitions, or Natures, being thus joined together, there may hence arise different Natures, or new Possibilities, depending upon each other: as we see in compound Machines, &c. And this the Author again illustrates with a great Variety of geometrical and physical Examples. The whole Procedure he declares to be the same that is used by the Masters of Algebra, for solving such Problems, as at first Sight might appear unsolvable, by any human Genius. For a Problem being proposed, the Thing is represented to the Eye, as if it were already known and discover'd; so as clearly to shew what Particulars are here joined together; whilst the Natures, or Definitions, thereof are either already known, or actually exhibited. Then each different Nature is separately consider'd, and expressed by a different Equation, in the most simple Characters possible. And now these several Equations are variously compared, or combined together, till a single Equation thence arises, and includes the Natures before express'd by different *Equations*; so as clearly to demonstrate how the Question proposed may receive a Solution.

21. The Author afterwards shews how his Method of discovering Truth *How to be facilitated.* may be eased: and in order thereto, first removes the *Impediments* in the Way; among the chief whereof he places *Falshoods, Prejudices, and Errors*; *Viz. (1.) by correcting Errors.* enquires into their Origin; and produces Instances thereof, in his three Kinds of Subjects, *viz. Imaginary, Mathematical, and Physical*. He accounts those the most subtle and treacherous Errors, when imaginary Matters are confounded with real, or physical ones; which he observes to be done even by the most acute Philosophers among the Moderns, in laying down the Principles of Nature; and shews how various Sects and Prejudices have thence arisen, and spread themselves.

22. These false Philosophies, and reigning Prejudices, he apprehends may be corrected two Ways; *viz. first*, by exactly distinguishing between the Operations of the Understanding, and those of the Imagination; and, *secondly*, by assisting the Understanding, in the Discovery of Truth, with the Imagination directed by a good Method of Investigation; and And this Help is afforded, (1.) by a just adapting of Words to Things; (2.) by proper Characters for different Ideas; (3.) by Motions, or moving Engines, and Contrivances, to assist the Mind in its Operations; and, (4.) by new Experiments, which give new Conceptions. And by this Means he supposes the Imagination may be brought to co-operate with the Understanding.

23. The

¹ See above, §. 13.

Valuing what
is known; and
having no im-
mediate regard
to Utility.

23. The *second Impediment*, he makes to be this; that we do not duly regard, nor attentively consider, the Things already known: and the *third*, that we too much regard the Usefulness of Knowledge, and Discoveries; whereas, he says, we ought to content ourselves with the bare Discovery of new Truths: otherwise we block up the Way to the most useful Things of all. For a very small natural Power, which in the abstract Conception, appears of very little Significance, may yet prove infinitely useful in its future Applications; as in the Case of the Magnetic Needle, Printing, Gunpowder, &c. For numberless Inventions of this Kind may be derived from trivial Experiments.

Helping the
Indifference of
the Mind;
shortning the
Work; and ob-
taining Time
for it.

24. The *fourth Impediment*, he makes to be a natural Indisposition in Men; whence they are not always fit to go upon the Enquiry after Truth: and for this Indisposition he proposes several Remedies. The *fifth Impediment*, is a too long Series of Investigation; which he endeavours to remove by a proper Distribution of the Work, and establishing a proper Order. And the *sixth Impediment*, he makes to be this; that the Affairs of Life often prevent our enquiring after Truth: which Hindrance he proposes to remove, by directing us to follow our own Inclination in Pursuits.

The Discovery
of unknown
Truths, to re-
gard three
Particulars.

25. In the last Place, he comes to deliver the Method of discovering unknown Truths, with respect, (1.) to ourselves, in following our own Inclinations; (2.) with respect to those Sciences, the Knowledge whereof is the most necessary, or most pleasing; and, (3.) with respect to Natural Philosophy, which, when known is, according to him, the most delightful of all Science. For by Natural Philosophy he understands a Knowledge of the Universe, demonstrated *a priori*, in exact mathematical Order; and confirmed *a posteriori*, by manifest Experiments, sufficient to convince the Imagination.

The Medicina
Mentis com-
pared with the
Novum Or-
ganum.

26. Such is the general Plan of the *Medicina Mentis*; wherein we may observe much Sagacity and Ingenuity: but perhaps, when closely examined, the Work will appear a little too much influenced by the Notion, which the Author at first espoused, of fitting the direct Algebraical Method to universal Philosophy; and that he has thus endeavoured to found an universal Art of Investigation upon one, which, tho' extremely noble and excellent, is yet limited or confined: or that, at best, his Method is not sufficiently general, or fitted for universal Practice; but rather formed according to the Model of Man, than the Model of Nature. It may also, till farther improv'd, appear to be more mental than practical; and to be better fitted for solving Phænomena in the ordinary Manner, assigning probable Reasons of Things, and making all square with the human Mind; than to discover, and such actuating Causes as shall enable Men to subdue and conquer Nature by Works: in which Light, it seems to fall vastly short of the *Novum Organum*, or Art of *Investigating Forms*.

27. But tho' in this principal View, the *Medicina Mentis* may not be so useful as the *Novum Organum*, yet they have a remarkable Agreement in numerous other respects; and may be made greatly to assist and promote each other: especially the *Medicina Mentis* will prove serviceable to the *Novum Organum*, in the forming of Notions; which M. *Tschirnhaus* terms the *forming of Definitions*. Thus much is certain, that they both deserve to be farther improved, and reduced to Practice: for the Field of Nature is so large, as to require all the Engines, and artificial Helps, that can any way be procured. And if this Method of M. *Tschirnhaus* shall be brought to Perfection, or commodiously fitted for Practice; it will then, perhaps, be found to coincide with the *Novum Organum*, so as to constitute a Part of that general Engine, from whence, it seems in great measure, to have been derived: for, as the *Medicina Mentis* is the *Algebra of Men*, applied to Things; so the *Novum Organum* may be called the *Algebra of Nature*, applied to herself.

28. Amongst the later Philosophers of our own Nation, who have endeavoured to improve, or find out, Methods of making new Discoveries; the Principal seem to be Mr. Boyle, Mr. Locke, Dr. Hooke, and Sir Isaac Newton. Mr. Boyle has given us a particular Account of the Method he pursued, in his Philosophical Enquiries; which plainly appears to be formed upon the Model of the Lord Bacon; and is no other than a loose and imperfect Kind of Induction, proceeding upon certain Tables of Enquiry, or general Heads of History. For in every regular Enquiry, Mr. Boyle first proposed to himself three Kinds of Orders, Ranks or Classes, under which he ranged all the Particulars relating to the History of his Subject; whether it were a Body, a Quality, an Operation, or a Process. The first general Order, or Place, was destined to receive all such Titles, or Heads of Enquiry, as readily occurred upon the first deliberate View, or general Survey of the Subject; the Titles being made sufficiently numerous and comprehensive, and not accommodated to any Hypothesis. His Titles of the second Order were set down, after a careful Consideration of the Heads of the first; trying the Experiments, and making the Observations there proposed; and after reading Authors, conversing with Philosophers, and meditating upon the Subject; so as thus to have procured a full Information with relation to the Whole thereof. This Set of Titles will, of course, be more exact, more full, and better ranged than the first; whence the Materials here contained or indicated, will, with the proper Introduction, Alterations in Method, Connections, Transitions, Additions, farther Directions, &c. begin to form a Natural History of the Subject; that may be improved, from Time to Time, or from Age to Age, till it arrives at Perfection. Lastly, where the Enquiry was difficult, or large, the Author thought proper to form a middle Order of Titles, interposing betwixt the two former; and this by carefully examining and comparing the several Particulars ranged under the Titles of the first Order: so as thus to discover many new Directions, and

The English Philosophers who have endeavoured at Methods.

Mr. Boyle's Method.

Heads of Enquiry; which being afterwards added to the former, may require the whole to be new-moulded; and afford a much more copious and useful *Set of Titles*, than the first: all which Titles are to be filled up, as Experiments or Observations are made, or the proper Informations obtained. But after all, as many Particulars may happen to be omitted, or not be thought of at the proper Time, or when they are wanted; and as the History must needs be improvable by After-thought, and farther Knowledge; the Author leaves a Place empty, by way of Appendix to his Titles, for receiving the Particulars omitted, that belong to some of the Titles; but were forgot or overlooked: and another for Particulars to be added; under which such new Matter was to be received, as might be procured by farther Discoveries and Improvements made, after the History should be written, or published ^m.

Mr. Locke's
Essay upon
Human Under-
standing.

29. Mr. *Locke* appears to have designed a kind of familiar Explanation, and Illustration of many Aphorisms of the first Part of the *Novum Organum*; in his excellent *Essay upon Human Understanding*; and again, in his posthumous Piece concerning the *Conduct of the Understanding*: but he seems no where to have explained the second Part of the *Novum Organum*; or the Art of Investigating Forms. His Philosophical Writings are now generally known and read; but as they tend to the curing of Prejudice, preparing the Mind, and fitting it for the Discovery of Truth, rather than to open any fresh Fountains of Science, or teach the Art of Discovery, they need not here be insisted on; especially as they have but little immediate regard to Natural Philosophy; from whence all the Sciences shou'd be derived and supplied. And the same Character may be understood proportionably of Father *Malbranche's Recherche de la Verité*.

Dr. Hooke's
Method of im-
proving Natu-
ral Philosophy.

30. Dr. *Hooke*, who was a great Master in the Art of Invention; as appears by his numerous Contrivances and Discoveries; pursued much the same Method as Mr. *Boyle*. In his Piece for *Improving Natural Philosophy*, he seems to have proposed to perfect the Design of the Lord *Bacon's Novum Organum*. And it is great Pity that a Person so well suited to the Work, did not proceed farther in it. All he has done towards it, is little more than a familiar Repetition of what the Lord *Bacon* had before laid down under the *Doctrine of Idols*; *Helps for the Senses*; the *Doctrine of Prerogative Instances*; and the *Method of collecting a History of Nature*: tho' the Doctor has sometimes added apt Illustrations, large Explanations, and particular Improvements.

Left un-
finished.

31. Had Dr. *Hooke* finished the Piece, according to the Scheme he at first proposed, it would doubtless have familiarized the Parts of the *Novum Organum*, which are already extant; and, perhaps, have supplied the rest: but as it now stands, it is defective in those very Parts which are wanting in the *Novum Organum*. It was indeed a posthumous Piece; and, perhaps, purposely neglected by the Doctor towards the Close of his Life,

^m See Mr. *Boyle's Works, Abridgm. Vol. I. Prelim. Disc. p. 24.*

Life; for fear of divulging his *Mechanical*, or *Philosophical*, *Algebra*, which he seems to have learnt from the *Novum Organum*, and desired to conceal u.

32. Sir *Isaac Newton* appears to have had a very extraordinary Method of making Discoveries: but as that great Philosopher did not think proper to reveal it; Philosophers of an inferior Rank can only guess at it, and admire what they do not fully understand. Where the Business of Investigation depended upon Experiments; as particularly in his excellent Enquiries about Light; he seems first to have imagined, in his Mind, how Things were; and afterwards contrived his Experiments, on purpose to shew, whether those Things were as he had preconceived them, or not: and according to the Information thus obtained; whether from his own Experiments and Observations, or those of others; he altered and improved his Notions, till after various Trials, and various Amendments, his Notions appeared to be just and perfect. And this is a short, or mechanical Method of Induction.

Sir Isaac Newton's Method conjectured.

33. But besides this kind of mechanical Method, Sir *Isaac Newton* had a mathematical one, afforded him by his Dexterity in *Algebra*, and his admirable Invention of *Fluxions*; which are not to be understood and applied in Philosophy, without great Sagacity and Caution: for otherwise they will be apt to mislead. And here this great Author has shewn uncommon Address; and found the Secret of calculating mathematical, or mental Forces, Powers, and Motions, and afterwards applying them to natural Bodies, and natural Things. But the Attempt is suitable only to a distinguishing and sublime Genius, that can let Mathematics constantly rule and preside over Physics, without corrupting Philosophy, or rendering it fantastical.

His Algebra and Fluxions.

34. At other Times this great Philosopher observed the stricter Laws of Induction; collected the necessary Facts, Observations, and Experiments; and by contemplating them in his Mind, or reasoning upon them, gave the Result, with its Consequences; as in the Theory of the Tides, Moon, Comets, &c. So that he seems to have used all sorts of Methods, by Turns; or to have formed one to himself, compounded of the mechanical, mathematical, and the usual inductive Method. So that if this mixed Method also were to be prosecuted, and brought to the greatest Perfection whereof it is capable, it may fall under that still more general one of the *Novum Organum*.

His Method of Induction.

35. This *Novum Organum*, we have seen, is divided by its Author into two general Parts; viz. one that is designed to be preparatory or introductory to the other, which is scientific or doctrinal; so as clearly to deliver a new Way of Proceeding upon all kinds of Enquiries; with

The general Scheme of the Novum Organum, divided into two Parts.

ⁿ See the Account of his Life, prefixed to his *Posthumous Works*, p. 4. See also his *Method of improving Natural Philosophy*, p. 65. and compare the whole of that Piece, the *Preface* to his *Micrographia*, and his own particular Enquiries, with the Doctrine of the *Novum Organum*.

the greatest Advantage to the Mind, for acquiring a thorough Knowledge of the Works of Nature; and leading to an unlimited Practice for accommodating human Life.

*The first Part
divided into
seven Sections.*

*The Result of
the first Se-
ction.*

36. The Design of the preparatory Part, is to remove Prejudice, procure a fair Hearing, and give some tolerable Notion of the whole *Insaturation*. It may be subdivided into seven lesser Parts, or Sections; the first whereof endeavours (1.) to awaken the Mind, as it were from its Lethargy; and make it see that Philosophy and the Sciences are so far from being perfected; that (2.) Men are hitherto unprovided of the true Instruments and Means of forming the Sciences; (3.) that, as Knowledge and Power constantly go hand in hand, Men have but little Knowledge, because they produce but few considerable Effects; (4.) that the common Ways of Reasoning and Contemplating, tho' so much magnified, are but delusory Things, and require much Rectification and Amendment; (5.) that the common Logic and Syllogism, however useful in common Affairs, are of no Service in Philosophy; (6.) that our first Notions of Things are faulty, and require to be corrected, improved, and verified; (7.) that the sure Way of discovering Truth has not hitherto been tried; (8.) that Men form vain *Idols* to themselves, instead of discovering the Truths of Nature; (9.) that a more powerful Logic than the common, or a kind of Engine for the Mind, is absolutely required for the Service of Philosophy; (10.) Men preposterously delight in a hasty and erroneous Way of disputing, judging, and confuting, according to the scanty Measure of their own Knowledge, and the supposed Truth of their own ill-form'd Notions.

*The Result of
the second Se-
ction.*

*False Imagi-
nations be-
longing to
Men in gene-
ral.*

37. The *Second Section* shews the several Errors we commit in forming our Notions of Things; and how detrimental such Errors are to the Progress of Philosophy. It shews that the Mind is tinged and infected *four* several Ways: for (1.) Men in general have a strange Propensity, and obstinate Property, of referring all Things to themselves; as if nothing existed otherwise than is represented by their immediate Senses; or as if there was nothing in Nature, but what their Senses immediately perceive: whereas the other Parts of the Universe, as the Air, *Æther*, &c. and other Creatures, are to be regarded in Philosophy, as well as Man. And here Man is shewn (1.) inclined to feign and invent from within himself, instead of searching and discovering; (2.) to be extremely liable to Prepossession and Prejudice, so as with Difficulty to remove those false and superstitious Notions he has once imbibed; as of Astrology, Omens, Judgments, &c. (3.) to be easily moved and led away by those Things that affect the Imagination, more than the Reason; (4.) to be fond of launching into Infinity, and the highest Universals; disdaining the intermediate Truths, which in Practice are more serviceable; (5.) to be drenched in the Affections of his Body, and thence easily turned aside to Pride, Vanity, false Hopes, &c. (6.) 'tis shewn that the human Senses, without farther Assistance, are of little Use

in

Second Part of the Instauration.

371

in Philosophy, tho' Men attribute such great Matters to them; and (7.) that Men are fond of abstract Notions, and general Theories; at the same time neglecting the due Enquiry into Nature, and Particulars; which alone can shew them what Things are. And these Imperfections belong to the Species of Men, or Mankind in general.

38. (2.) The Mind is also infected differently, according to the Constitution, Complexion, Bent, or Inclination of each particular Person; or according to his Education, Custom, Conversation, Studies, Course of Reading, Employ, and other accidental Matters; whence every Man has his own peculiar Biass; or, as it were his own particular Glass, tinged to his Humour, thro' which he views every thing. And hence some Men doat on Mathematics; others on Chemistry; others on Logic, &c. and accordingly tinge and infect whatever they apply to, with Mathematics, Chemistry, Logic, &c. whereas the true Philosopher should not be warped to any particular Branch of Science; but remain equally affected to them all; as they may all afford their Assistance in promoting Philosophy. But in the present State of Men and Things, some subtle Capacities pursue the minute Differences of their Subject, and make no End of splitting and dividing; as in Anatomy, &c. till the mechanical Structure, or Organization, of the Parts, is lost: and others, on the contrary, consider only the Wholes, without examining the Parts. Some fondly admire the Ancients, as *Aristotle, Plato, &c.* and others some favourite modern Philosopher. But unless the Mind be thoroughly convinced of the Folly and Absurdity of such a Procedure; and be brought, by Art and Habit, to a quite contrary Temper; true Philosophy cannot be effectually promoted: for the Sciences formed by distemper'd Minds will partake of the Distempers; and accordingly appear trifling, gross, partial, half-faced, distorted, fantastical, &c.

39. (3.) The third Way wherein the Mind becomes perverted, is by the Abuse, or improper Use of Words; for the philosophical Words, in all Languages, are commonly false, or inadequate, Marks, or Signs, of Things; and by no means convey just and perfect Notions. So that Men are continually imposed upon, even against their Wills, by a wrong Imposition of Words; which are generally coined by the Vulgar; or if by Philosophers, it is without taking the requisite Pains and Care to form Notions duly, from Things; and then give suitable Names to those Notions. And hence the Reasonings, the Discourses, and even the Writings of Men, are often strangely confused, or but seldom perfectly intelligible; and propagate imperfect Notions, which Men take by Consent, without enquiring whether they are just, or how they were formed. But, in order to improve Philosophy, it is of great Importance to have Words suitably adapted, and kept invariably to denote perfect Notions; so as to express or convey such Notions without Delusion, or Imposition. But no Language of this kind can be made, till a Set of such Notions shall be duly formed, from Things; which depends

upon the Use of Induction. And as this Language, and these Notions, are hitherto, in great measure, wanting; the Mind thus remains unprovided of one very great Help for the Improvement of Philosophy.

*The Result of
the third Se-
ction.*

*Sophistical
Philosophies,
what.*

*False Notions
arising from
fantastic The-
ories.*

*Empirical
Philosophies,
what.*

*Superstitious
Philosophies,
what.*

*The Mind a-
buses itself, by
forming false
Notions.*

40. (4.) The Mind is, again, strangely perverted, by fabulous Theories, and romantic Philosophies; which are extremely numerous, and still continue to increase. The *Third Section* divides them into three general Kinds; viz. *Sophistical*, *Empirical*, and *Superstitious*. *Sophistical Philosophies* are those formed upon common, or hasty Observations, and Experiments; by a subsequent Operation of the Mind. Thus *Aristotle's* Philosophy was formed upon common Observations, wrought up by his Logic; so as to become sophistical, and corrupted: for common Observations, and obvious Experiments, are not of themselves, fit to build a serviceable Philosophy upon; as they by no means shew all the secret Motions of Nature; and the Laws by which Things are govern'd. Nor is the common Logic an Engine at all suited to deal with Experiments, Observations, and Nature.

41. *Empirical Philosophies* are those formed upon only a few Experiments, tho' made with great Exactness; as *Dr. Gilbert's* Philosophy is formed upon his magnetical Experiments; and the Philosophy of the *Chemists* upon a few repeated Experiments of the Furnace, &c. But to form a general Philosophy upon a few Experiments, must needs appear a childish Attempt, to those who consider the Variety and Extent of Nature; and the treacherous, faulty, or rash Propensity of the Mind, in reasoning from them.

42. *Superstitious Philosophies* are those where Matters of Faith and Religion are worked up with those of Reason and Sense; which makes fantastical Philosophies, and heretical Religions. Thus the Philosophy of *Pythagoras* was clogged with gross Superstition; and that of *Plato* with one more dangerous: and thus, of later Date, a Variety of Theories have been given of the Earth, from the first Book of *Genesis*; which has had the Fate to be differently explained, and worked up into opposite Systems, according to the different Fancies of Men; or the prevailing Philosophies of the Times. And thus it appears, that scarce any one has had Thoughts of deriving a pure and perfect Philosophy from Nature, that should be a true Model of the World, without any more Mixture of Logic, Mathematics, Chemistry, Magnetism, &c. than may be found in Nature.

43. In the next Place are shewn some particular Ways which the Mind has of abusing itself, by forming wrong Notions of the Things that are seen and consider'd. Thus upon seeing the Changes wrought in Bodies by the mechanic Arts, in the way of Combination and Resolution, Men are apt to imagine that Nature makes use of the same Expedients in compounding and separating Bodies; whence seem to have sprung the delusory and imperfect Notions of the four common Elements; as if all Bodies were compounded of, and resolved into these: hence those called the

the *Chemical Principles*, &c. And thus from seeing Mechanics work with the Ruler and Compass, seems to have arisen the crude and imperfect Notion, that Nature operates geometrically, &c. But these, and the like Notions being superficial, and erroneous, cannot be admitted into Philosophy, without corrupting it. The same is to be understood of Logical, Mathematical, and Metaphysical Notions; rashly introduced and mixed with such as are Physical.

44. Again, the Mind is apt to run into two contrary Extremes; so *The Mind sub-* as either to be very positive and dogmatical; or else extremely loose *jest to two Ex-* and sceptical, in Philosophy. Thus *Aristotle* determining to cut off all *cesses.* future occasion of doubting, called up Questions, and resolved them; to shew that all was now settled and determined. But *Pyrrho* and his Followers doubted of every thing. And in this manner Men commonly either stop short too soon, and fancy that enough is known already; or continue fluctuating in Incertainties; or else turn aside to Amusement, instead of endeavouring to procure an active and serviceable Philosophy. And unless these perverse Habits be corrected, no pure Philosophy can be obtained.

45. But instead of endeavouring to correct these ill Habits of the *False Demon-* Mind, Men have the Talent to confirm and strengthen them, by *cor-*rupt and perverted kinds of Proofs and Demonstrations; which are rupt *strations.* generally used instead of the true. For logical Demonstrations wrest the Works of Nature, to make them square with the Thoughts of Men; whereas the Thoughts of Men ought to be submitted, and formed according to the Works of Nature: so that logical Demonstrations, applied to physical Matters, are only the Play of Words; or at best, deceitful and incompatible. For the unassisted Senses are incompetent; *The Logical* Notions are ill formed from their Reports; the Principles of the Sciences *Kind false,* can never be justly inferr'd from a Number of Instances produced only *when applied* on one Side; and the present Method of arguing from Principles, is *to Physics.* erroneous and inconclusive.

46. The best Method of Demonstration, is shewn to be the *Demon-*stration by Experience; provided we do not rashly endeavour to judge *Experience, the* of other Things from it; but proceed therein with great Circumspection, *best Demon-* and rigorous Exactness: which Method having been little observed, no *stration.* wonder if true Philosophy be but little advanced.

47. The *fourth Section* proceeds to shew by what Signs, or Marks, *The Result of* false Theories and Philosophies may be discovered; so as to prevent the *the fourth* Mind from being impos'd upon. And here it is made appear, that the *Section.* Philosophy in vogue over *Europe*, is principally the superficial, professorial, disputatious, and sophistical Philosophy of the *Greeks*, and chiefly *The corrupt* of *Aristotle*; a Philosophy which, however it may have spread, is little *Philosophy of* more than Logical, or Verbal; that does not convey such Directions as *Aristotle,* may enable us to perform any thing considerable for the Advantage and *spread over* Accommodation of Life. And, again, it is shewn that the *Greeks* were *Europe.* Masters

Masters of little Knowledge, especially with regard to the Basis and Matter of all other Knowledge, Natural Philosophy.

*The best Sign of
judging of a
Philosophy is
by its Fruits.*

48. And here the surest Sign whereby to judge of any Philosophy, is shewn to be by its Fruits or Usefulness, in supplying the Necessities of Mankind; and improving the practical Arts whereon the Accommodations of Life principally depend. But the *Greek* Philosophy having yielded none of these Fruits, it is to be accounted barren. And the same Judgment is to be made of the Chemical and Magical Philosophies; neither of which have enlarged the human Power, in any tolerable Proportion to their high Pretensions. We are not, therefore, to form a Judgment of any Philosophy from its Show and Appearance; the Greatness of its Authors; the Antiquity of its Origin; the multitude of its Admirers; the Reputation it has gained among learned Men; nor even from general Consent itself; but principally from its Use, or the Tendency it has to improve the Mind, enlarge the human Powers, and give us a Command over Nature.

*The Result of
the fifth Section.*

49. The *fifth Section* is designed to shew the Reasons why the Philosophers of all Ages have fallen into Errors; and made so little real Improvement in the Business of Philosophy. These Reasons amount to this, (1.) that when a true Estimate is made, there has, through the several Ages of the World, been very little Time well suited to the Cultivation of *Natural Philosophy*; which, as must be well remembered, is the Foundation of all philosophical Knowledge; or the true Matter whereof the Sciences should be formed: (2.) that during the Times best suited to the Study of Natural Philosophy, little Labour has been bestowed thereon; the Men of Genius and Learning having chiefly applied themselves to Morality, Civil Policy, and Religion: (3.) that scarce any single Person ever applied himself entirely to the Study of Natural Philosophy; which having been always look'd upon as a kind of secondary Thing, was only consulted occasionally; and, in a perverted manner, made subservient to Physic, Mathematics, &c. (4.) That the true End of Philosophy has been entirely mistaken; which is to enrich and ennoble human Life with useful Inventions, new Arts, and new Powers; whereas Philosophers, as they are called, have had Views to the raising of Sects, aggrandizing their own Names, gaining a Dominion over Mens Minds, or some such inferior and pernicious Ends. (5.) That wrong Ways have been chose for advancing Philosophy; and Argument used instead of Experiment; Reasoning and Speculation, instead of close Observation, and genuine Induction; and the true Method of raising fruitful Axioms, and discovering Works worthy of Mankind, entirely neglected. (6.) That a few ancient Philosophers have been obstinately and perversly admired, or almost adored, as Men of supernatural Abilities; to the shameful Neglect of improving the human Power: Whereas the Ancients, living in the younger Days of the World, were in many Points of Experience and Knowledge, inferior to the Moderns.

*Natural Philosophy little
cultivated, but
laboured under
great Difficulties through
the several
Ages of the
World.*

derns. (7.) That a false Imagination, as if Men were possessed of many excellent Arts, and perfect Sciences, has fatally hindered the Improvement of Philosophy: whereas, the Arts and Sciences at present in use, are, in reality, but few and weak, in comparison of what may be discovered by the Light of *Axioms*. (8.) That much Craft, and a kind of Imposture, has been generally used, to make the Sciences appear more perfect and compleat than they are; whereby many have been deluded. (9.) That much Vanity has been shewn by some modern Authors, in boasting themselves, and making great Promises of delivering extraordinary Things for the Advantage of Mankind; but shamefully failing in the Performance, sober Men have hence taken a Distaste, and too obstinately believed other practicable Things, to be of the same Stamp. (9.) That Men have generally neglected to propose themselves noble and suitable Tasks for the Improvement of Philosophy; and instead thereof, have indolently determined many sober and rational Things to be mere Impossibilities, or beyond the reach of Art; at the same time greatly over-valuing slender Performances. (10.) That religious Zeal, Bigotry, Superstition, and the School Divinity, have, through several Ages, been very unfavourable to the Improvement of Natural Philosophy, and checked its Progress. (11.) That the common Schools, Universities, Colleges and Societies of learned Men, have also generally opposed all new and considerable Improvements in Knowledge. (12.) That no sufficient Rewards have been allowed for Inventors and Improvers. And, lastly, that sedate and sober Men have indulged an untimely Despair, or entertained a Belief that no farther Improvements can be made in Philosophy. So that under all these Obstacles and Discouragements, it is no wonder if very little true Philosophy has appeared in the World.

50. The *sixth Section*, of the first Part of the *Novum Organum*, tends to raise the Mind from the Languor it may have been thrown into, by the melancholy Prospect of the former *Section*; and sets before us, in a native Light, what solid Reasons there are to expect, that, notwithstanding the Obstacles and Discouragements above enumerated, a genuine Philosophy may be set on Foot; and, if Men will not remain wanting to themselves, be brought to Perfection; and afford all those Fruits and Advantages that the human State is capable of affording.

The Result of the sixth Section.

51. And here the Author observes, (1.) that as the Art of Navigation has discovered new Countries; and carries on a Correspondence even betwixt the most distant Parts of the Globe; great Opportunities are thus afforded, of procuring the necessary Informations for enlarging the Bounds of Knowledge. (2.) That, as we may plainly perceive the Errors which the ancient Philosophers fell into, and the Reasons why they failed in promoting the more serviceable Sciences; if the Errors they committed are carefully avoided, and a different Method to be taken, there are Grounds to hope for better Success in future. (3.) That therefore, the Art of Experimenting, and the Art of Reasoning, are to be joined together;

The Reasons there are to expect a farther Improvement of Philosophy: or the Way of building up Philosophy anew.

By forsaking
the past Er-
rors.

gether ; or a new Art to be formed by a Mixture of the two, in order to procure a *Sylva*, or suitable Collection of prepared and well digested Materials for Philosophy. (4.) That Natural Philosophy must be kept pure and uncorrupted with Logic, Mathematics, and Divinity. (5.) That the Mind must discharge itself of all Prejudice, false Notions, phantastical Theories, and useless Philosophies ; and become fit to receive such Notions as are just, and purely philosophical ; without any way corrupting or debasing them. (6.) That a just Foundation must be laid for Experience, in a *History of Nature*, collected with the greatest Exactness, Diligence, Fidelity and Judgment ; so as to make it extensive, or to measure of the Universe ; without admitting any thing faulty, foreign, or superfluous. (7.) That, in particular, the more leading and informing Experiments are to be carefully sought and procured. (8.) That a true Order, or just Method, of experimenting be introduced ; so that Experiments may not remain casual Things ; but an *Art of Experimenting be formed*. (9.) That no Inventions, or particular Ways of working, or combining, the Materials of Philosophy, be trusted to Thought and Contemplation ; but the whole Process be exactly wrote down, or described on Paper. (10.) That the Matters of a pure *History of Nature* be not left in loose Particulars ; but be regularly digested and brought into *Tables* ; according to the Nature of every Subject ; that the Understanding may work thereon to the best Advantage. (11.) That *Axioms* be formed from these *Tables* ; so as to point out new Experiments, and thence afford still higher *Axioms*, leading to greater Works. (12.) That these *Axioms* be formed, not in the Way of the Ancients, by rising, at once, from Particulars to the most general Conclusions ; but by careful Steps, in a safe and guarded manner ; so that the *Axioms*, thus raised, shall not afterwards deceive, but be thoroughly verified, and remain just and pregnant Expressions of the Laws and Facts of Nature and Art. (13.) That a new *Method of Induction* be employ'd in raising these *Axioms* ; viz. such a *Method*, as is suited at once, to discover and demonstrate *Arts and Sciences* ; by investigating the real and internal Natures of Things. On this new *Method*, or *Art of Induction*, the Author builds his principal Hopes of improving Philosophy. And to deliver this *Art*, was the principal Purport of the *Novum Organum* ; the Part we are now upon being only introductory thereto. And to give some Intimations for perfecting this Art, the present *Appendix* is wrote. (14.) The last Foundation of Hope, in the way of forsaking past Errors, is this ; that Natural Philosophy may be extended, or made to afford Matter to the Sciences ; and they again be brought back to Philosophy ; so as to make them center therein, without mutilating or dismembering the Sciences ; whilst they, together with Natural Philosophy, constitute one serviceable Corps of Knowledge.

And proceeding
in a new Me-
thod.

52. (15.) The next Fountain of Hope for the Improvement of Knowledge, is the Prospect which Men may have of future Discoveries ; if they

they will put themselves into the proper Way of Enquiry. For, since many Discoveries have been hit upon, unexpectedly, or by Accident; as by the Instinct of Brutes, &c. without going in quest of them; greater Success may be, doubtless, expected from a proper Method of Enquiry, and the Art of experimenting with Reason, Industry and Sagacity; more especially by the *Method of Induction*, abovementioned, which is a Contrivance for the speedy bringing of new Discoveries to Light. (16.) Some considerable Improvement of Philosophy may be also reasonably expected, if the requisite Time, Expence, and Application shall be used in collecting such a *History of Nature*, as was mentioned above; which is a Thing that has never hitherto appeared; but may be procured, and is no impossible, or impracticable Scheme. (17.) And, lastly, tho' we had less Encouragement to hope for Success than we have; yet a Course of Trial and Experimenting should be undertaken; because there is thus, at least, a Chance of improving Philosophy, at the Expence of a little Labour: whereas, to sit down desponding, or resolved against all Trial and Attempt, seems unworthy of Human Nature.

53. The *seventh* and last *Section* of this preparatory Part of the *Novum Result of the Organum*, is calculated to give some tolerable Notion, not only of the *last Section of* Design of the second Part; but also of the whole *Instauration*: that the *the first Part* Nature and Use of the new Method of Induction may be better understood. And here the Author declares, that he has no View to found a Sect in Philosophy, or procure Followers; but only to lead Men by the hand a little, in order to shew them the way of following Nature; and freeing themselves from the Necessity of following any Philosopher whatever. And in order to prevent all Misunderstanding, or Misconstruction of this his real Design, he proceeds to answer the more considerable Objections, that might be apt to arise against it; from the Prejudices, and false Notions which Men commonly imbibe.

54. And first, because Men are naturally impatient, and immediately desire *That a hasty* to see the Advantages of new Undertakings, the Author guards his Reader *Desire of Advantages in* against all rash and hasty Endeavours after Profit and Advantage; as *Philosophy* what will prove highly pernicious, and tend to prevent the good Effects expected. But for those who cannot wait, he leaves them at liberty to use, in their own Way, the several Helps he has afforded towards the Production of considerable Works and Effects: for he would by no means hinder, but as much as possible promote and expedite the Discovery of all advantageous Arts and Works. But till a tolerable *History of Nature* is procured, he judges that no very considerable Progress can be made in what he calls the *genuine Interpretation of Nature*; or forming of rich Axioms, that shall lead to new Arts and capital Works. Such a *History*, therefore, himself proposes to procure.

55. But he apprehends, that several Objections will be made to this *Objections against a History of Nature* *History*; as that it will contain false Facts, erroneous Experiments, and disagreeable, subtle, vulgar or abstruse Particulars. But all this he shews *answered*.

amounts to little; because (1.) a few Errors, and even Falshoods, must necessarily happen in the beginning of a *History of Nature*; and will not prove of any very bad Consequence; (tho' they should indeed be cautiously guarded against:) for such Errors and Falshoods, where but few, are easily discovered and corrected, when *Axioms* come to be raised, or the Interpretation of Nature to be entered upon. (2.) Vulgar Things being usually as much unknown, with respect to their Causes, as Things uncommon; such vulgar Things should not be rejected, but received into a *History of Nature*. (3.) Disagreeable or sordid Matters, such as Corruptions, Putrefactions, &c. must be here necessarily consider'd, no less than others; because they give great Light into the Operations of Nature: and Things for this Design must not be judged of by the Rules of Elegancy; but according to Utility. And, (4.) *subtile, speculative Matters*, are not here received for the Sake of Subtilty and Speculation; but only as they afford Information, lead to practice, and assist in the *Interpretation of Nature*.

Objection, that all former Philosophies are rejected.

Answer'd.

56. The Author apprehends, it will appear strangely shocking, insolent and monstrous, that he should at one Stroke set aside all the ancient Philosophies, and all the Sciences; and go entirely upon a new Scheme of building up Philosophy from a different Foundation. But he judges, that this Procedure, when duly considered, will be found more rational, modest, and serviceable, than to have used artful Accommodations, and patched up a deceitful System of new and old Materials: for as the Ancients raised their Philosophies upon false Notions, or false Principles, discovered in an erroneous Manner; there was an absolute Necessity of beginning the whole Work anew. Nor does he think it insolence, if by means of an Engine for the Mind, or particular Helps which the Ancients never knew, any one, of common Abilities, should raise a more serviceable Structure of Philosophy, than they by means of the naked Understanding.

That this Scheme has regard to Contemplation, as well as Practice.

57. To the Objection, that the End of all this Labour is wrong fixed; as tending to Practice, and the Accommodation of Life; and not to the abstract Contemplation of Truth, which is a much nobler Thing; 'tis answered, that the latter is indeed preferable to the former; but that, in the Method proposed, both Ends are answered at once: the Design being here to give a genuine, a native, and just Representation of the World, such as it exists; which is not only the most useful Knowledge, but the noblest Contemplation; that unites Theory and Practice together, in their highest Degree, and makes them one and the same Thing.

The Method here proposed, not used by the Ancients.

58. To the Objection, that perhaps the Author's new Method is no more than some old one, and therefore not of any extraordinary Use; he answers, that the Ancients have delivered their Method of forming the Sciences; which was by flying immediately from a few Particulars to general Conclusions; a Method very different from the Method he proposes, by a rigorous and careful *Induction*: that, in particular, his Method does not tend to *Scepticism*, but to a scientific doubting at first, that

that the greatest Certainties may be afterwards discovered; and that this Method regards not any one particular Art or Science, but all Arts and all Subjects universally.

59. But the Author hopes that no one will suspect his Design is to abolish, and utterly destroy the Arts and Sciences at present in Use; especially as he has, in his *de Augmentis Scientiarum*, taken so much Pains to improve, and shew the Way of perfecting them: all he aims at, in this respect, being to convince the Mind, that the Sciences in vogue are of no Use for enlarging the Bounds of Knowledge, and discovering new Arts, and practical Works: which End, his own Method is entirely calculated to promote. And yet he does not pretend that this Method of his is absolutely perfect or unimproveable; but, on the contrary, that it will doubtless improve, as new Arts are found, or new Discoveries made. And thus he concludes the first, or preparatory Part of this Work.

Does not destroy the Sciences already in being.

60. The *second Part*, as was before observed, is wholly doctrinal, or scientific; and goes directly upon delivering the *new Art of Induction*, or *Method of Interpreting Nature*, in order to form an extensive Philosophy; or procure an exact Copy of the Universe, for perfecting the Understanding, and leading to an unlimited Practice. And here, as the most excellent Things are often the most difficult to obtain; the Doctrine delivered will appear somewhat abstruse, till the Mind becomes a little acquainted with it; after which all the Difficulties vanish, and an agreeable Prospect is obtained of a sure and practicable Way of procuring, in a moderate Time, with the proper Assistances, such a Philosophy as shall highly improve the State of Human Nature.

General Scheme of the second Part.

61. The Foundation of the Thing is laid in finding a Method of increasing the human Powers and Knowledge, to their greatest possible Perfection. And this the Author shews may be done by discovering what he, in a new and peculiar Sense, calls the *Forms of Things*; that is, the Laws or Powers of Nature, by which Things physically exist, are generated, or have their Effects. And these *Forms*, or *Laws of Nature*, he holds to be discoverable by Men; and shews how to discover them: in which single Point the whole of his new Engine centers. There are but two *Sections* finished of this second Part: the first whereof lays the Foundation of the *Doctrine of Forms*, and exemplifies it by a general Example, and a Set of *Tables* for the Purpose: and the *second Section* shews how to shorten Enquiries, conducted in this Method; by selecting only the more eminent Facts and Observations, or *Capital Instances*, that lead to a full and perfect Discovery; without ranging, in an endless manner, through that immense Variety of Particulars, to be found in Nature.

The Foundation of the whole laid in the Discovery of Forms.

62. But as it would be a fruitless Labour to go upon discovering these *Forms*, without knowing their Use, when found; the first Section of this *second Part* shews, that the End of Philosophy is to increase either the

The Use of Forms, when discovered.

Knowledge, or Power of Man; so as to enable him to understand the Ways and Procedure of Nature; or else to produce such Effects as make for his own Advantage: and that to discover *Forms*, is at once to acquire both this *Knowledge*, and this *Power*; because by finding the Laws of Nature, and her Ways of producing Effects, Men will be enabled, so far as their Condition allows, to use the same, as Rules of Practice; and thus, in some Cases, to equal, regulate, subdue, or even excel Nature by Art. So that upon the Discovery of *Forms* depends the Perfection of Philosophy, or the Enlargement of the human Knowledge and Power.

The Discovery of Forms explained and illustrated.

63. This Business of discovering *Forms* being of such infinite Importance, the Author endeavours to make it as intelligible as its Nature will admit, in the present imperfect State of Minds and Things; and shews, that in effect, to discover *Forms*, is the same Thing as having some extremely intelligent Person, ready at hand, to consult upon all Occasions concerning the Works of Nature; the Search after *Forms* being like asking of Questions; and the Discovery of them like the receiving of Answers: so that there is no Point of Theoretical Knowledge, no Rules, or Directions, required in Practice, but what may as well be had by the *Discovery of Forms*, as if Nature herself were to speak, and tell Men how she works; and what they must do to imitate, lead, or command her. For to find a *Form*, is to find a Nature, that shall be equivalent to the Nature sought; so as when present, or absent, to constitute, or abolish, that Nature respectively. Or, to make the Conception still plainer, the Form of a Thing is the effective Power, or physical Act, by which it exists. Thus if the Nature sought were *Fluidity*, or the Means of converting Charcoal into a fluid Mass; and it be found, by a proper Course of Enquiry, called the *Investigation of Forms*, that the Form, Law, or Nature of Fluidity consists in a certain Size, or Smallness of Parts, join'd with a certain Motion; this is finding a Nature equivalent to, or convertible with, Fluidity: whence Men are directed to give this Smallness of Parts to Charcoal, along with the particular Motion discovered; upon which, the Charcoal will put on the Nature of Fluidity: and accordingly, if Charcoal be reduced to Powder, and detained in a close Vessel in the Fire, till its Parts are sufficiently agitated, it will have the Appearance of a Fluid. And this may illustrate, or give some sensible Image of the Thing under Consideration; and shew that both a perfect Theory, and a perfect Practice, depend upon the *Discovery of Forms*.

Practice to preside in building up the Sciences.

64. But as a pernicious Custom of leaving Experience, and running into abstract Speculations, has prevailed; the Author judges it much the surest Method to begin to raise the Sciences from Practice; or to let the practical Part describe and limit the theoretical, or contemplative. He therefore enquires what are the best practical Rules that could be wished for; and finds them afforded by the *Discovery of Forms*: so that, on all Accounts, the *Investigation of Forms* is the first and principal Thing that can be gone upon, in order to improve Philosophy, and perfect

perfect the Sciences; especially as, at the same time, these *Forms* also afford, according to what was before observed, perfect theoretical *Axioms*, as well as the best practical *Rules*, *Canons*, or *Precepts*.

65. On this footing, the Requisites to Practice must be first consider'd; *The Canons and Axioms required to Practice.* that is, the Means of enlarging the human Power, and enabling it to introduce all possible Changes upon Matter; or produce all possible Effects. And here the Author shews there are two different Kinds of *Canons*, or *Axioms*, for producing Transmutations, or Changes; viz. one with regard to Bodies, as they are an Assemblage, or Combination, of a Set of Properties; as Gold is of a determinate Gravity, Ductility, &c. and another that depends upon finding the Way wherein Nature herself proceeds in the Generation or Production of Bodies; as how Gold was made in the Bowels of the Earth, &c. The first kind of *Axiom* shews how Things are made by introducing a certain Set of simple Properties into a Mass of Matter susceptible thereof; and the second directs the Way of proceeding by seminal Properties, as it were; or beginning with the Rudiments of Things, and using the same first Matter, and Means, that Nature herself employs. And where the Power of Mankind cannot possibly reach to operate, as in the Heavens, &c. yet even there the Facts of Nature may be sought; and her Laws and Manner of proceeding discover'd. The whole Process of finding these *Axioms*, and discovering the Causes of Things, the Author calls by the Name of the *Interpretation of Nature*.

66. This *Interpretation of Nature* has two Parts; the first with regard to the forming of *Axioms* from Experience; and the second with regard to the contriving of new Experiments from *Axioms*. *The Interpretation of Nature, divided into two Parts.* The first requires proper Helps for the Mind; or Assistances for the Sense, the Memory, and the Reason: and hence, before this *Interpretation of Nature* can be exercised to Advantage, a just and extensive *History of Nature and Art* must be procured; as the first Matter out of which *Axioms* are to be framed, *Forms* discovered, and *Philosophy* built.

67. This History is not to be a Rhapsody, or confused Collection of all sorts of Matters, thrown together on a Heap; but to be carefully digested, and formed into regular *Tables*, or Packets of *Instances*, and prepared Parcels of History; as the Pillars, the Rafters, &c. are made ready for a Building. And when such a History shall be procured, the Understanding is not to work upon it by means of its own simple natural Powers; but is to be assisted by the Use of genuine *Induction*; and thus enabled to practise the Art of *investigating Forms*.

68. (1.) The Subject of Enquiry being chose; suppose, for Example, the *Form of Heat*; all the Instances wherein Heat is found are to be duly collected, and ranged in a particular *Table*; so as to afford a clear View of these Instances to the Mind. A distinct Enumeration must, therefore, be made of all the Things that are hot; as the Sun's Rays, Flame, ignited Iron, &c. (2.) A Collection is to be made, and a regular *Table* formed, of

*Tables to be
formed.*

of those Things wherein Heat does not reside: but as this might swell the *Table* immoderately; only such Things need be mention'd as approach near to the Nature of the former, except in the single Property of Heat, which they are without; such as the Rays of the Moon, certain Corruscations, Glow-Worms, &c. that afford Light, but no Heat. And thus the Things that are not hot, being placed over against the Things that are hot, the Mind may distinctly compare the two sorts together. (3.) A *Table* must next be formed, to shew the different Degrees of Heat, that are found in different Things; or to exhibit, at one View, all the Instances of Heat, with regard to more and less; beginning with such Things as are not sensibly hot to the Touch, and proceeding gradually to the most violent Heats, as those of Vulcano's, the Burning Concave, &c.

*From whence
to be derived.*

69. These *Tables* ought to be drawn from the History of Nature and Art, mentioned above; or borrowed from the *Natural Historian*; and laid before the Philosopher, or *Interpreter of Nature*; whose Office it is to practise the Art of Induction upon them; so as by comparing them together, both in general, and in particular, to find such a Nature, Law of Motion, or Action, as being present, exerted, or performed, in any Body, or Portion of Matter whatsoever, the Nature of Heat, or Heat itself, shall of necessity be produced therein; and such as when that Law, Motion, or Action is absent, Heat shall be absent; and so come and go with that Law, Motion or Action perpetually; or attend it in any intermediate Degree, according to the exact Proportion wherein that Law, or Action is exerted: which is what the Author means by the *Form of Heat*.

*The Method of
Rejection, how
to be practised.*

70. But here, if the Mind should of itself directly endeavour, without farther Assistance, to discover the Forms of Things; it would fall upon ill defined Notions, Imaginations, Guesses, Probabilities, and imperfect Axioms, instead of true and genuine *Forms*; and thus be far from obtaining the End proposed by this new Method. The next Step, therefore, is to practise the Business of Exclusion or Rejection; viz. to throw away, or separate in the Mind, all those Things from the Nature of Heat, which do not immediately, and of absolute necessity, belong to it; so that a compleat and perfect *Notion, Axiom, or Form*, that is, the pure Conception of the true Cause, Essence, or Nature of Heat, may remain as a solid and perfect Portion of Truth behind. And this Exclusion also is to be performed in the Way of a *Table*, wrote down as the former. Hence, as the Sun's Rays are found to be hot, the superficial Notion that Heat is peculiar to terrestrial Bodies, must be rejected, &c.

*The Interpre-
tation of Na-
ture, how be-
gun.*

71. And thus the Business of *Induction* is begun; but by no means rectified and finished: for as this Exclusion, or Rejection, is the throwing out of simple Natures, or Properties, from the Nature of Heat; a perfect Knowledge of simple Natures is previously required, before the Induction
can

an be compleated. But Men have not hitherto acquired perfect Notions of simple Natures, or the simplest Properties of Things; such as Tenuity, Fluidity, Texture, &c. In the mean time, because Truth will easier arise from Error, than from Confusion; the Understanding may be permitted, by considering the several *Tables*, to make some Attempt towards interpreting Nature, in the Affirmative; or to find out the positive, actual *Form*; tho' without pretending that it is truly and perfectly discover'd, till all the preceding *Tables* shall have been perfected: which, as was before observed, depends upon a perfect *History of Nature*; and again, upon using a perfect *Induction*; which is an Art that has not hitherto been duly prosecuted, and brought to the necessary Degree of Perfection.

72. However, to give an Idea of the whole manner of Procedure in this Business of *Interpreting Nature*, when all Things shall be properly fitted for the Purpose; the Author here adds a fifth *Table*, to represent what he calls the *first Vintage, or Dawn of Doctrine, from the Form of Heat*. And this *Table* sets to View the Process of the Mind, solely employ'd, without Distraction, or Interruption, upon the several preceding *Tables*, in order to investigate, or discover the *Form of Heat*. The Result of the whole Process amounts to this, that *Heat is an expansive, bridled Motion, struggling in the small Particles of Bodies*: which is a summary Expression, or *Axiom*, describing the *Form of Heat*, so far as could be derived from the *imperfect Tables*, and the imperfect Art of Induction here employ'd. And with this Idea of the Whole, the Author concludes the first Section of the Second Part of the *Novum Organum*.

73. In the *Second Section*, the Author proceeds to perfect the *Art of discovering Forms*, or to shew the manner of framing an *Induction* that shall conclude as justly in Philosophy, as Syllogism does in Logic, or Demonstration in Mathematics. Accordingly, he here directly treats of *Prerogative Instances*, or the Way of procuring proper Collections of such Facts, Observations, and Experiments, as are best fitted to enter the three *Tables of View*, corresponding to the three first, above-mention'd; so that a few of these Instances may answer the Purpose of many, shorten the Business of Search and Enquiry, and afford a prepared and proper Matter for *Induction*, in all kinds of Subjects.

74. And of these *Instances*, he makes twenty-seven different kinds; viz. (1.) Such as exhibit the Nature enquired after, in Things that agree with, or differ from others, in respect to that Nature only. (2.) Instances wherein the Nature sought appears in a State of Generation, or Destruction. (3.) Those wherein the Nature enquired after stands alone, in a high Degree of Perfection or Predominancy. (4.) Such as shew the Thing enquired after, in its lowest State, weakest Virtue, or first Rudiments. (5.) Such as exhibit the Nature enquired after, in the way of a lesser *Form*. (6.) Such as shew a Likeness and Relation in the Concrete, so as to help in uniting Nature. (7.) Such as shew Bodies in the

By way of Permission to the Understanding.

The second Section tends to perfect the Art of Induction.

The various Kinds of Instances, for the purpose.

Concrete, as it were out of their Course, or broken in Nature. (8.) Errors of Nature, Things monstrous, extraordinary, or out of the Course of Nature. (9.) Bodies consisting of two different Natures, or double Species. (10.) The most perfect Works of Men in every Kind. (11.) Instances wherein the Nature sought is either constantly present, or constantly absent. (12.) Instances that shew the Limits of Nature, or the Bounds betwixt Existence and Non-Existence, in all Subjects. (13.) Such as mix and join Natures supposed to be incompatible, or heterogeneous. (14.) Such as shew an inviolable Conjunction of one Nature to another, and the separable Alliance of others. (15.) Such as shew the Separation of Natures that frequently meet. (16.) Such as assist the Actions of the Senses; particularly the Sight. (17.) Such as bring those Things to the Senses that did not appear before. (18.) Such as discover the Motions of Nature connected, or gradually continued. (19.) Such as afford Information, where the Senses fail. (20.) Such as excite the Attention, and hint the Subtlety of Nature. (21.) Such as measure the Powers, and Virtues of Things, by Space. (22.) Such as measure the Powers of Nature by Time. (23.) Such as shew in what Proportion, Quantity of Body contributes to Quantity of Virtue. (24.) Such as shew the Prevalency or Subjection of Virtues to one another; under which come all the Species of Motion, or active Powers. (25.) Such as point out Advantages and Conveniences for Mankind. (26.) Such as regard Things of common Occurrence, and therefore save the Trouble of new Demonstrations; under which come the several Ways of Practice, or Means of Operation. And (27.) Such Instances as shew that a small Quantity of Matter, or an apparently small Efficient, may have a great Effect.

The Doctrine of Instances, how treated by the Author.

75. This Doctrine of *Prerogative Instances* is treated with Care; and illustrated with a suitable Variety of Examples, that open the Way to Enquiries of all Kinds, and lead to the Improvement of all the Parts of Philosophy; so as to shew, in a summary View, what is already known, in numerous Subjects, and direct a farther Prosecution; at the same Time that the Author is carrying on his own particular Design of perfecting the *Art of Induction*; and laying down Precepts, and giving Directions for the Execution of the remaining Parts of his *Instauration*. And here ends all that is left us of the *Novum Organum*.

The Novum Organum imperfect.

76. It is extremely to be regretted that the Author did not finish this Piece; of which it is evident he had the complete Idea, with its almost infinite Train of Uses. But there being nothing at that Time extant, which could, in any tolerable Degree, afford the necessary Instances for the *Tables of View*; he thought it incumbent upon him to set an Example, at least, of the manner of procuring them; as he did in his *Sylva Sylvarum*; and afterwards digested and fashioned many of them into particular *Tables*, in his *History of Winds, History of Life and Death, &c.*

77. He

77. He had proposed to deliver the remaining Parts of this *Organum* ^{Eight general Heads thereof remaining unspoke to.} under the following Heads; viz. (1.) the *Helps of Induction*; (2.) the *Rectification of Induction*; (3.) the *Method of varying Enquiries*; (4.) the *Prerogative Natures for Enquiry*; (5.) the *Limits of Enquiry*; (6.) the *Reduction of Enquiries to Practice*; (7.) the *Preliminaries to Enquiry*; and (8.) the *ascending and descending Scale of Axioms*^a. It might, perhaps, be of some Utility, briefly to go over these several Heads, so as to indicate a little of the Manner wherein it may be conjectured, from his other Writings, the Author proposed to treat them; and, at the same time, refer the Reader to those Parts of his own, and others Works, where farther Light and Assistance may be procured towards finishing the Whole.

78. (1.) The first Thing in order, after the *Doctrine of Prerogative* ^{The Helps of Induction.} *Instances*, was, to lay down the *Helps of Induction*: under which it should seem, that the Author proposed to deliver, (1.) the Way of procuring a genuine History of Nature and Art; as the Basis, or Matter, of Induction^b; (2.) to explain the Manner wherein this Matter might occasionally be reduced into regular *Tables of View*, according to the Nature of each Subject^c; (3.) to shew the Order, or Method, wherein the Mind is to consider the *Instances* contained in these *Tables*, both separately and comparatively, or collectively, in order to discover the Causes of the Thing enquired after; and deduce the *Axioms* for directing new Experiments^d; (4.) How these *Tables of View* are afterwards to be improved, or made more full or comprehensive, and ranged anew; so as to exhibit all the Particulars, in their most natural Order, and afford still greater Assistance to the Mind, in forming more just and perfect Conceptions, Notions, and Axioms^e; and (5.) the several Ways that might be contrived for helping or improving the Senses, the Memory, and the Reason, in order to the forming a more perfect *Induction*^f.

79. (2.) The *Rectification of Induction* stands next in order; by which appears to be meant the making a due Exclusion, or Rejection, of all those simple Natures, or Properties, that do not essentially contribute in constituting the *Form* of a Thing; so that, after such an Exclusion is compleatly made, the pure *Form* shall remain behind, unattended with

^a See Part II. App. 21.

^b See Vol. I. p. 44—47. 291—300. Vol. II. p. 327, 393—398. 406—408. Vol. III. p. 8—18. & *alibi passim*. See Dr. Hook's *Method of improving Philosophy*, p. 18—33. and Mr. Boyle's *Works*, *passim*.

^c See Vol. I. p. 125—130. Vol. II. p. 328, 335, 395, 433—466. Vol. III. p. 320—327, 337, 341, &c.

^d See Vol. I. p. 117, 119, 127. Vol. II. p. 328, 329, 424—466. Vol. III. p. 16—18.

^e See Vol. II. p. 328, 334, 335, 454, 455. Vol. III. p. 321, 322.

^f See Vol. II. p. 327, 504—513, 514—517. See also Dr. Hook's *Method of improving Philosophy*, p. 12—18. 34—42. and M. Tschirnhaus's *Medicina Mentis*, p. 182—211, &c. 2d Ed.

any thing more than is absolutely necessary, or essential to it: that is, a perfect Notion of the Essence, or constituent Cause, of the Thing, will be obtained, according to what was mentioned above².

Means of rectifying Induction.

80. The Business of rectifying *Induction*, will, therefore, require (1.) a previous Knowledge of simple Natures, or a Set of just and philosophical Notions; and (2.) the Way of contriving and making certain Experiments, or Trials, for producing certain Works, that shall verify and confirm the Truth of the *Induction*; by shewing, that if Men operate according to such Rules as are afforded by the *Axioms*, or *Forms* discover'd by *Induction*, they may produce the Works and Effects thus pointed out; which are such as could not be otherwise scientifically produced by Men³.

Induction a priori.

81. The Way of forming these Notions, is by the Use of *Induction* itself⁴; and requires an entire Extirpation of all false Theories, Idols, and vain Imaginations; that the Mind may become perfectly equable, and disposed to receive these genuine Notions⁵; which are not to be made conformable to the Sense of Man, but in exact Agreement to the Sense of Nature; so as to be scientific and just Expressions of Things, as they exist in Nature; and not as the Mind, of itself, from the first Information of the Sense, is apt to imagine them. And these Notions will enable us to make a true *Induction*, as it were, a *priori*.

Induction a posteriori.

82. But the other Way of rectifying *Induction*, is a *posteriori*; and depends upon this, that when a *Form*, an *Axiom*, or *Canon*, is found, or supposed to be found, by using the *Tables of View*, and the *Method of Rejection*; the proper Experiments are to be contrived, for determining whether this *Form*, *Axiom*, or *Canon*, be real, and not imaginary, or fictitious. And here the Doctrine of *Prerogative Instances* is of great Service, in indicating the requisite Trials, Experiments, or Works, for this Purpose⁶. If the expected Effect should in no wise follow, the Particulars of the *Tables* were either false, or incompetent; for the Method, when properly pursued, must needs be infallible. If the Effect answer but in part, and no Error has been committed in the Experiment; then the *Form*, *Axiom*, or *Canon*, must be mended, by going over the *Induction* with more Exactness, and better Helps. If the Effect answers to the full, under a due Variation of Circumstances, and in all Trials; a Proof will thus be gain'd of the Justness of the Procedure, the Goodness of the *Induction*, and the Validity of the Discovery. And these two, it

² §. 71.

³ See Vol. II. p. 335, 425.

⁴ See Vol. II. p. 325, 326, 351—368, 397.

⁵ See Vol. II. p. 327, 346, 504. See also Dr. Hook's *Method of improving Philosophy*, p. 9 and M. Tschirnhaus's *Medicina Mentis*, p. 72—91.

⁶ See Vol. II. p. 467, &c.

it should seem, were the principal Ways, which the Author proposed for rectifying his Induction^m.

83. (3.) The next Head is the *Method of varying Enquiries*: by which *The Method of* we are to understand not only the suiting of the Manner of Enquiry to *varying En-* the Nature of the Subject occasionally; but also the Ways of transposing, *quiries.* enlarging and improving the Parts of an Enquiry, both with regard to the Matter and Method, according as new Information, and farther Light, is obtained.

84. Thus, when the View is to discover Axioms or Forms, the En-*The Procedura* quiry must proceed from Particulars to Generals; or from a Variety of *from Particu-* apposite Instances, disposed in suitable *lars to Gener-* Tables, to the Axioms they afford, or the Form they point out: but when the Design is to lay out a Work, which itself is a particular Thing, we must begin with Generals, or the Axioms already obtained; and descend, by degrees, to the Work requiredⁿ. And, in both these Cases, most of the Steps that are first taken will remain improvable; as the Mind becomes better acquainted with the Subject, and the Things that relate thereto: till at length the Enquiry turns to a *perfect scientific History*; where no farther Alteration of the Method can be made to Advantage; nor any thing farther be added, for discovering the *Form*, or directing the *Work*; which was the original Subject of the Enquiry^o.

85. (4.) The next general Head of the *Second Part of the Novum Or-* ganum, is the *Prerogative Natures for Enquiry*; whereby we are to un-*tive Natures* derstand the Art of chusing those Subjects, a few of which may serve *for Enquiry.* instead of many; as in the Doctrine of *Prerogative Instances*; where the Author has shewn how all Infinity of Search may be cut off; or how, instead of an infinite Number of Particulars, a few may be selected, that shall more advantageously answer the same End: For the like is to be done in Enquiries. So that the Design here seems to have been to indicate a few *capital*, or *leading Enquiries*, which being duly prosecuted, should unfold Nature as effectually as if all possible Enquiries were prosecuted; thus proportioning the Business of perfecting Philosophy, to the Shortness and Casualties of Life^p. What these Enquiries are, may be learnt from those which the Author directly went upon; and those he intended to have proceeded with^q: and in what Order these Enquiries should be prosecuted; or which should come first, which second, &c. must be determined either according to their Utility in Life, or

^m See Vol. II. p. 330.

ⁿ See Vol. II. p. 330, 517—560. Vol. III. p. 316, 320. See also below, §. 88, 89, 90.

^o See above, §. 76. See also Mr. Boyle's *Method of prosecuting Enquiries*, Abridg. Vol. I. in init. p. 24, 25.

^p See Vol. II. p. 330, 331.

^q See Vol. III. p. 11, 12, 19, 29, 335, 337, 437, 503. See also Dr. Hook's *Method of improving Philosophy*, p. 18—70.

the Tendency they have to prepare the Way, and lead to, or facilitate the rest, and perfect the entire Body of Philosophy^r.

The Limits of Enquiry.

86. (5.) The *Limits of Enquiry*, or an Inventory of all the Natures in the Universe, is the Head that comes next in order; under which, in all Probability, the Author intended to shew, that the whole Scheme of his *Instauration* was no impossible, or infinite Thing; but limited and circumscribed within moderate Bounds; so as to be executed by Men, in their present State, without a Miracle, by the due Exercise of their Faculties, for a competent Time^s: Since Nature her self is limited; and since the Universe consists but of a certain Number of simple Natures, combined into numerous Things; as the Letters of the Alphabet are into numerous Words: whence, if these simple Natures were understood, the whole System of Things might be easily unravelled^t.

The History of Nature, to be collected.

87. The principal Difficulty seems to lie in the collecting a just and sufficient *History of Nature and Art*; for if this was once procured, the rest would follow almost spontaneously. And yet this *History*, when soberly and prudently consider'd, will be found no monstrous or impracticable Undertaking; provided the proper Expence be allow'd, a suitable Number of Hands be employ'd, and the true Method of doing it be observed^u. The Author has endeavoured to give an Epitome of the whole Thing, in the Compass of a few Lines^w.

The reducing of Enquiries to Practice.

88. (6.) The next general Head is the *reducing of Enquiries to Practice*, or making them subservient to human Uses. This seems chiefly to regard the conducting of Enquiries, where not *Forms*, *Axioms*, or *Canons*, are the Things in View, nor even the Discovery of Experiments; but where Works and new Arts are to be invented, laid out, and brought into Use, for a common Benefit and Advantage. And the general Method of effecting this was above observed^x to be by proceeding downwards, from general Axioms, to the particular Work proposed.

89. But

^r See Vol. III. p. 17. The Direction of the *Medicina Mentis* is here different; as it would have no regard paid to Excellence, or Utility; and nothing to be primarily intended but the simple Discovery of Truths. See that Work, p. 209—212.

^s See Vol. I. p. 4, 10—16. Vol. II. p. 405. Vol. III. p. 319, 320.

^t See Vol. I. p. 84. Vol. II. p. 344, 381.

^u See Vol. I. p. 13, 14. Vol. II. p. 393, 394, 401, 405. Vol. III. General Preface. See also Vol. III. p. 16. and Dr. Hook's *Method of improving Natural Philosophy*, p. 27, 29, 36. but particularly p. 21. where the Doctor has these Words: "I have very good Reason to believe that the whole Mass of *Natural History* may be contained in much fewer Words than the Writings of divers single Authors: and the Method of using them will be much more easy; and the Labour of interpreting or understanding them, if done aright, will be almost as easy, as to unravel a Bottom when you begin at the right End."

^w See Vol. III. p. 320.

^x §. 82.

89. But besides this, the Author intended to shew the Method of making general *Practical Tables*, for laying out Works with the greater Ease, and bringing them more speedily to Perfection. And in this View it seems to be, that in every Enquiry he constantly reserved a particular Head, or *Table*, for receiving the Things that more immediately regarded Practice, and human Uses^v.

90. Again, besides the Method of deriving new Arts, or Works, from Axioms; there is another more mechanical and facile Method of deriving them from former Experiments, or Works themselves: which Method, tho' by no means so safe and certain as the former, may however prove of considerable Service; especially if it were duly cultivated and improved^z.

91. (7.) The next Head is *Preliminaries to Enquiry*; by which it may be conjectured the Author meant not only the getting rid of Prejudices, and false Notions^a; the consulting one's own Genius, Disposition, and Abilities^b; but likewise the procuring all necessary Assistances for the Purpose; and particularly using the artificial Armour, or Machinery of the Mind; so that the Mind may act in the highest Degree of its Powers, and Faculties^c. And under this Preparation may be included *Tables*, or *Heads*, of *Enquiry*, previously drawn up, to direct the Mind what Particulars it should enquire after; what Queries it should make; and what Intimations it should observe, with regard to the subsequent Business of Interpretation^d, &c.

92. (8.) The last general Head of the *Second Part* of the *Novum Organum*, is the *ascending and descending Scale of Axioms*; which was touched above^e. It may be farther added, that the Business of Enquiry, and the Improvement of universal Philosophy, depend entirely upon (1.) forming Axioms from Particulars, by legitimate *Induction*^f; (2.) verifying these Axioms^g; (3.) raising still nobler and more general Axioms from the former, till those of the highest Order are obtained, reaching even to the Universalities of Nature^h; and (4.) resolving these sublime Axioms again, by sure Steps, or Gradations, into lower Axioms, that lead

^v See Vol. II. p. 330. Vol. III. p. 18, 497.

^z See Vol. I. p. 119, &c. Vol. II. p. 330, 517, &c.

^a See Vol. II. p. 351, &c.

^b See Vol. II. p. 334.

^c See Vol. II. p. 327, 328, 334, 335, 338, &c. Vol. III. p. 316—320. See also Dr. Hook's *Method of improving Philosophy*, p. 12, 18, 42, 64.

^d See Vol. II. p. 332—335. Vol. III. p. 8—16, 313, 327. See also Dr. Hook's *Method of improving Philosophy*, passim.

^e §. 84, 88.

^f See Vol. II. p. 329, 396, 397, &c.

^g See above, §. 78, 80.

^h See Vol. I. p. 510. Vol. II. p. 334, 335. Vol. III. p. 316, &c.

lead to an unlimited Practice, and discover all the Arts and Works that are wanting to accommodate human Life¹.

Conclusion.

93. And thus the general Heads that require to be filled up, for perfecting the Design of the *Novum Organum*, have been briefly spoke to, either in the way of Conjecture, or from parallel Places of the Author; with this View, that Persons of Leisure, who have been versed in practical, as well as speculative Philosophy, may be the reader induced to finish a Work, whereon the Good of Mankind so much depends.

¹ See Vol. II. p. 335. and Vol. III. p. 316, 317.

END of the SECOND VOLUME.
END of the SECOND VOLUME



1795